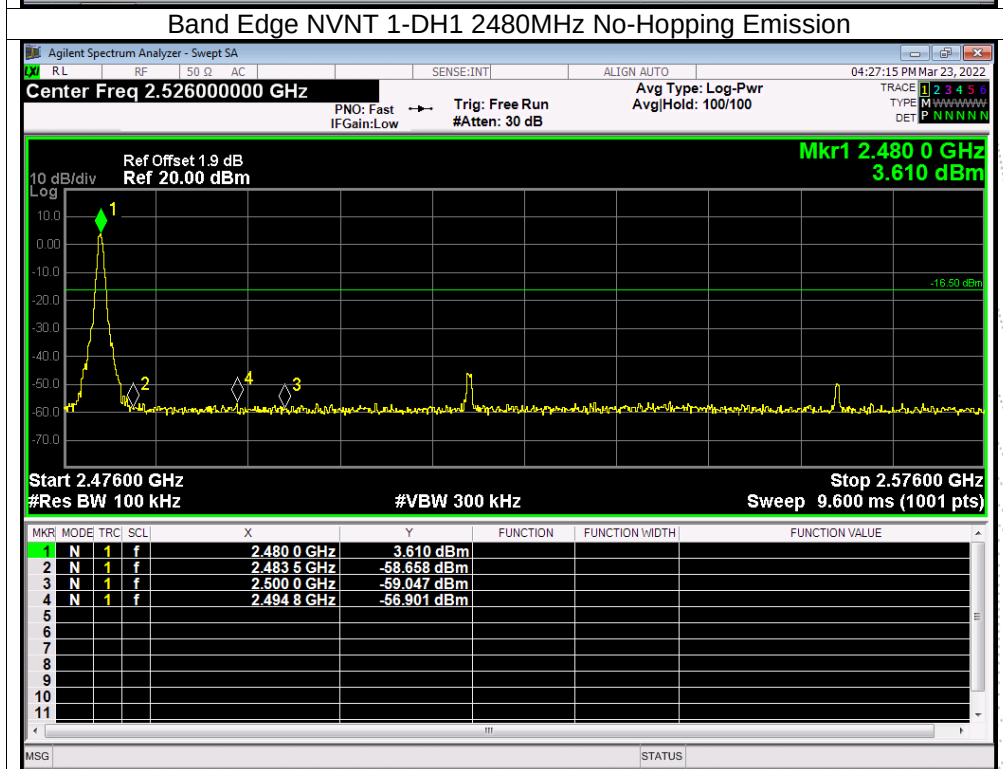
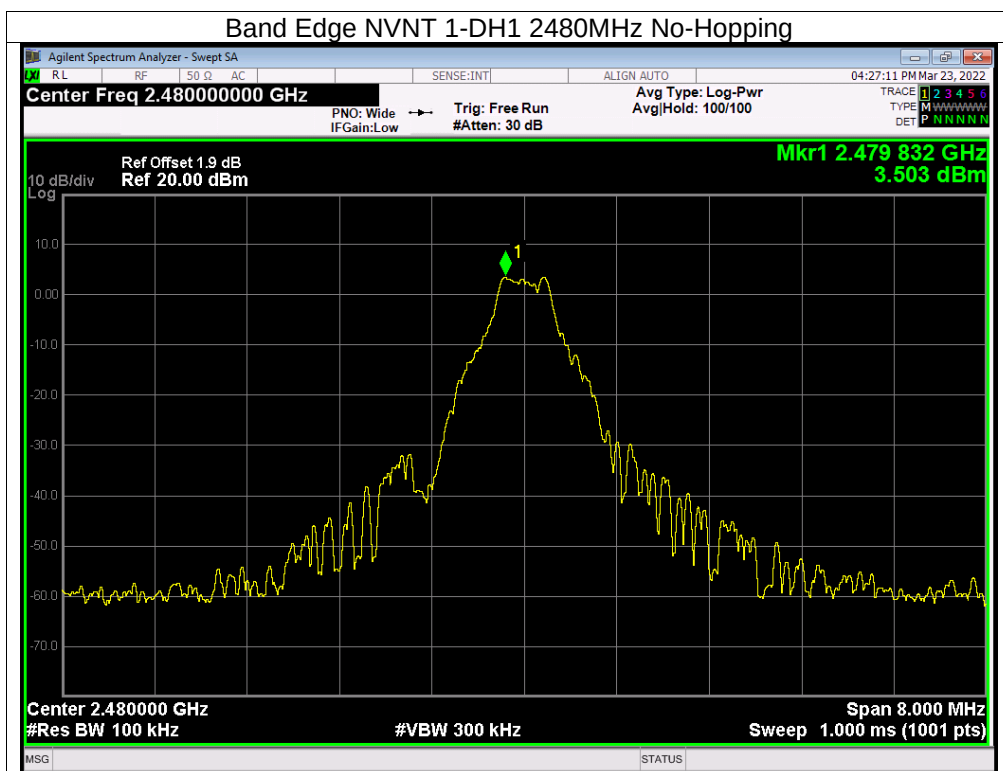
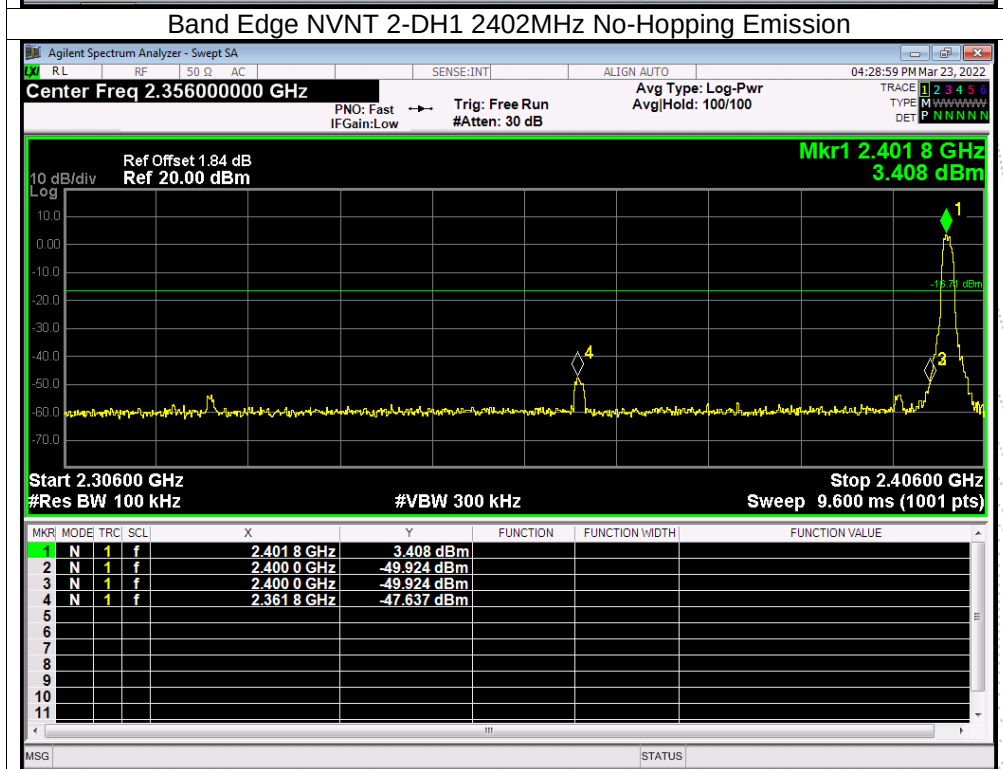
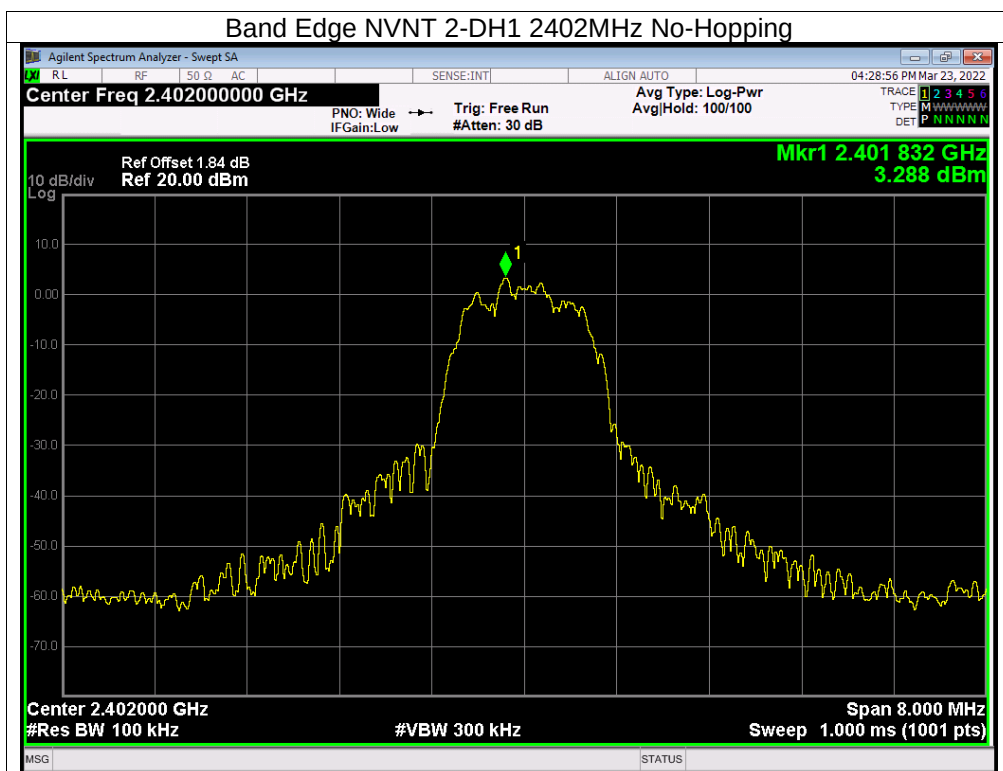
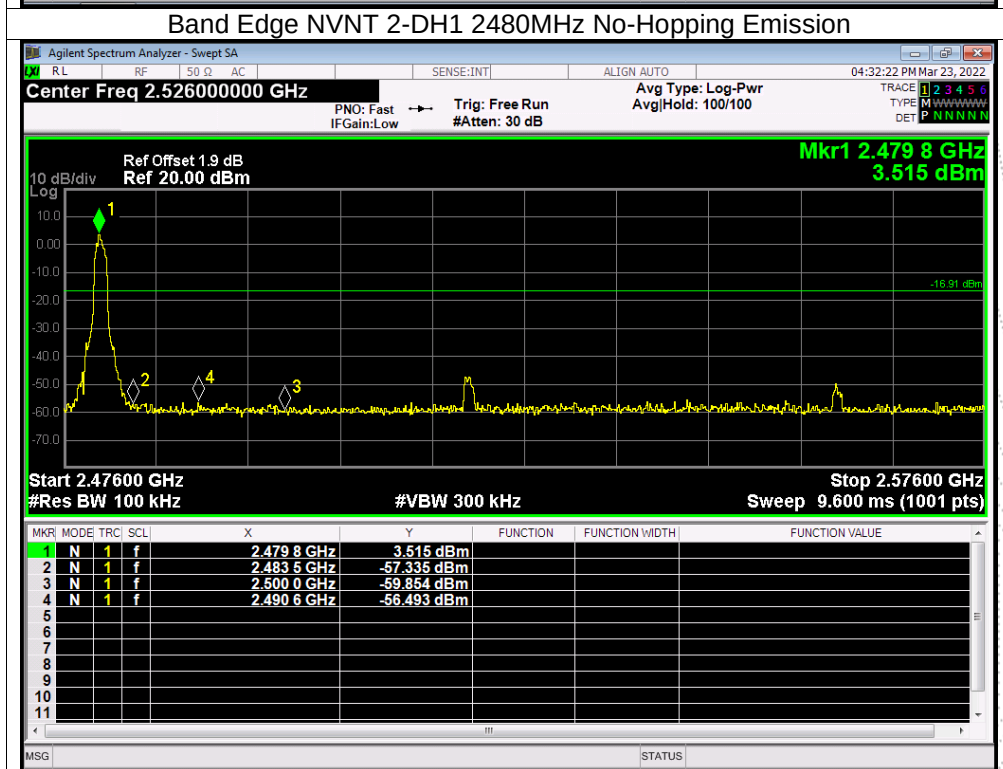
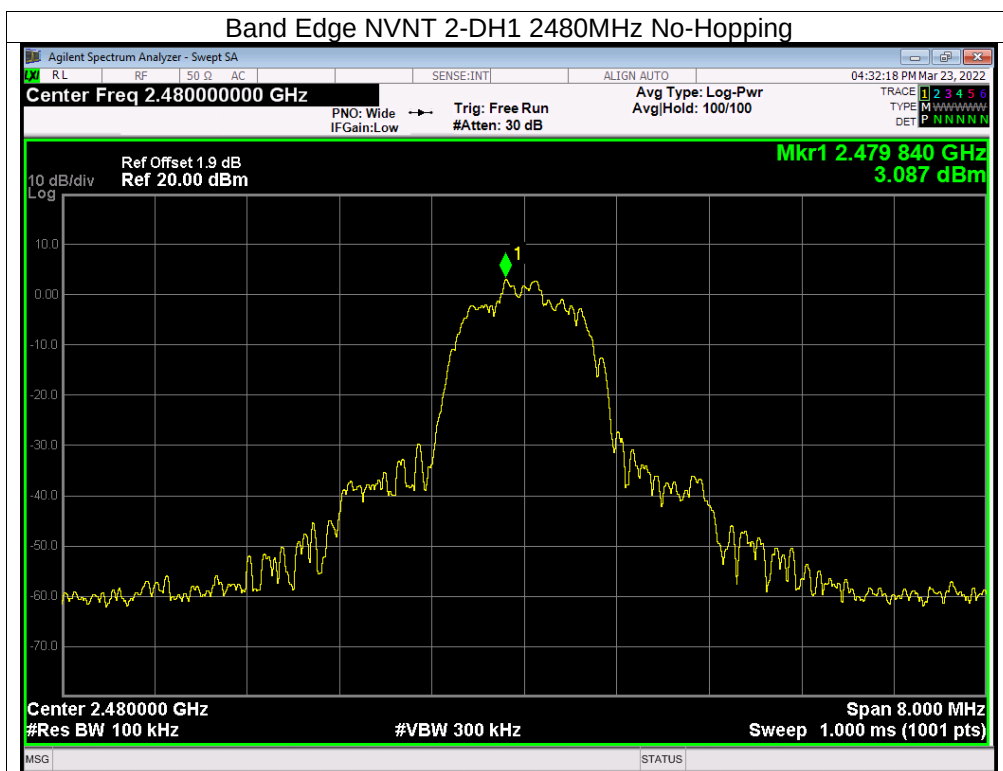
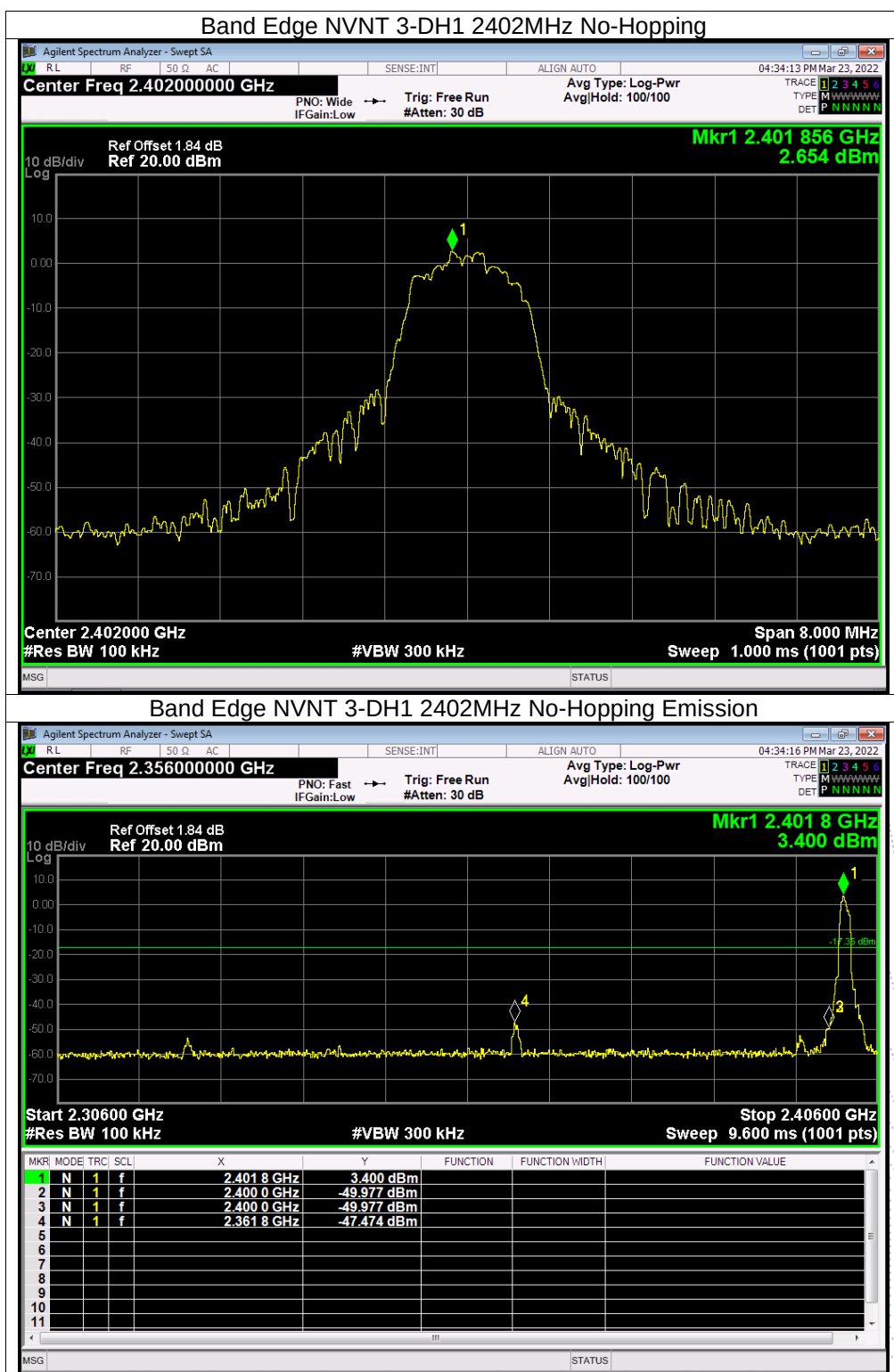
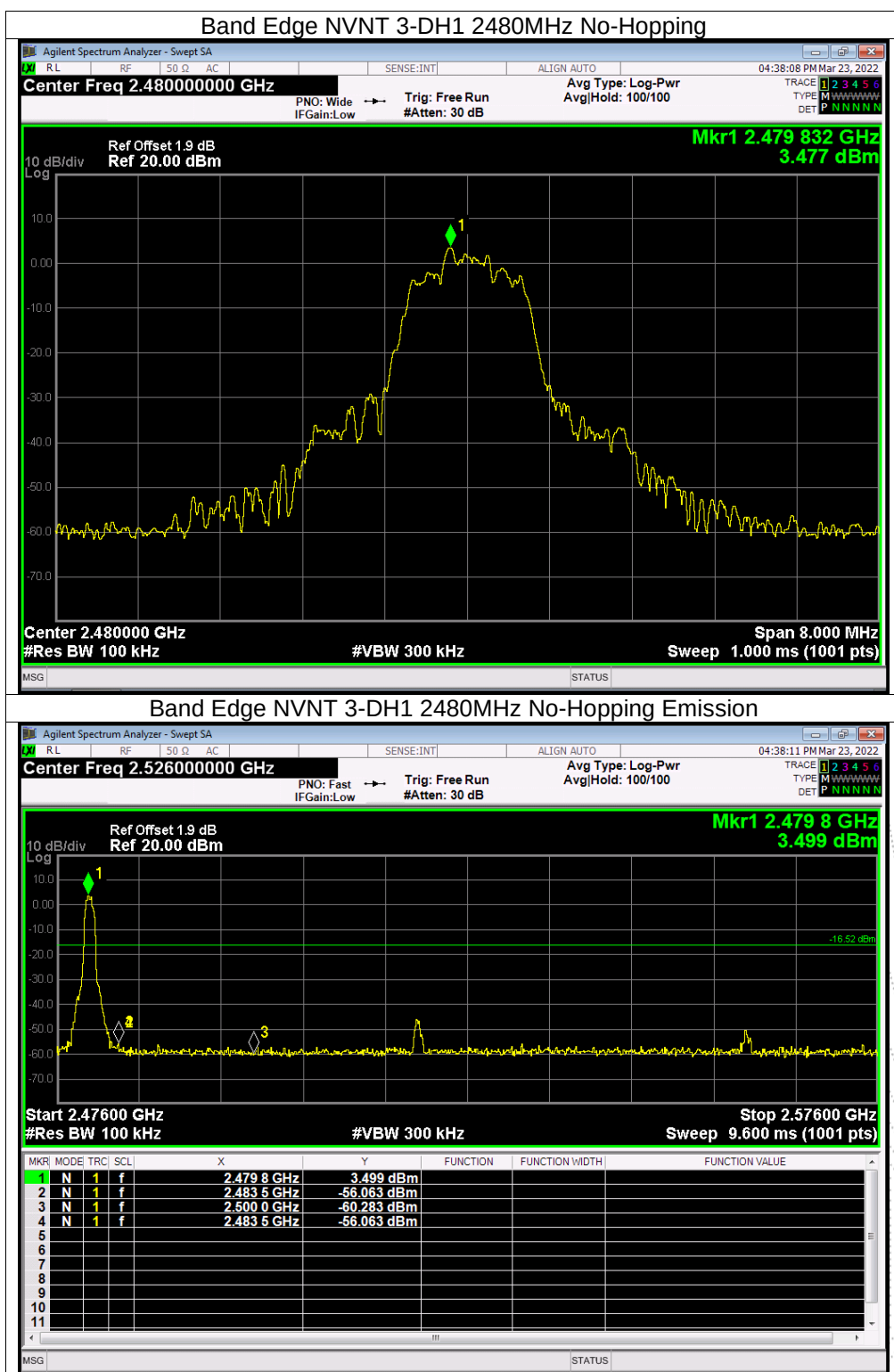












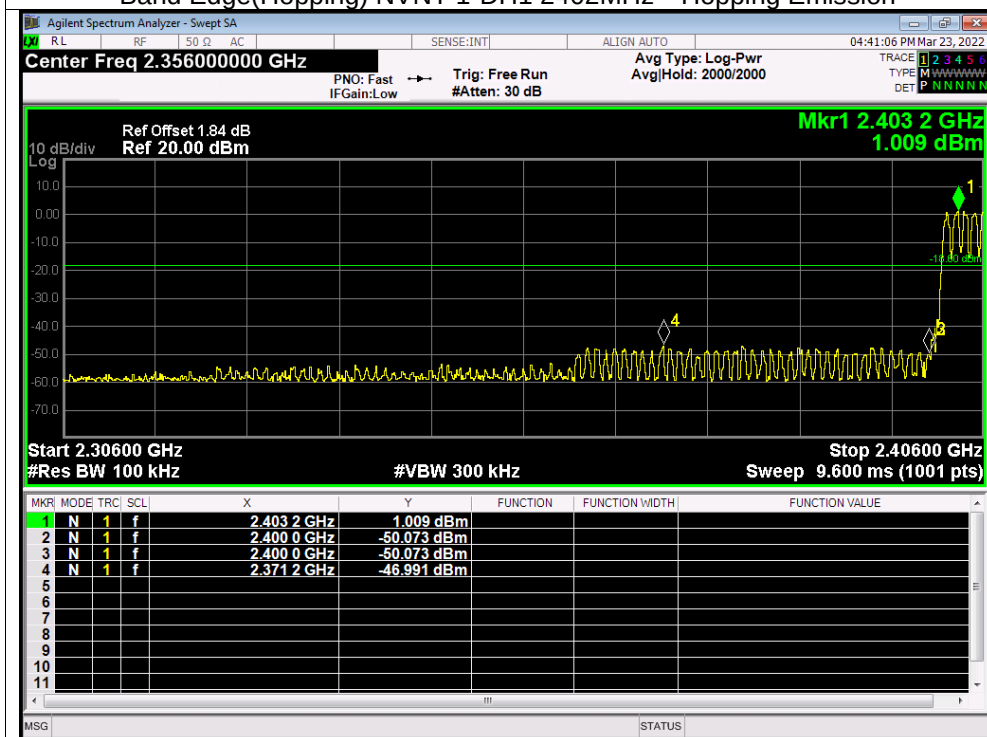
Band Edge(Hopping)

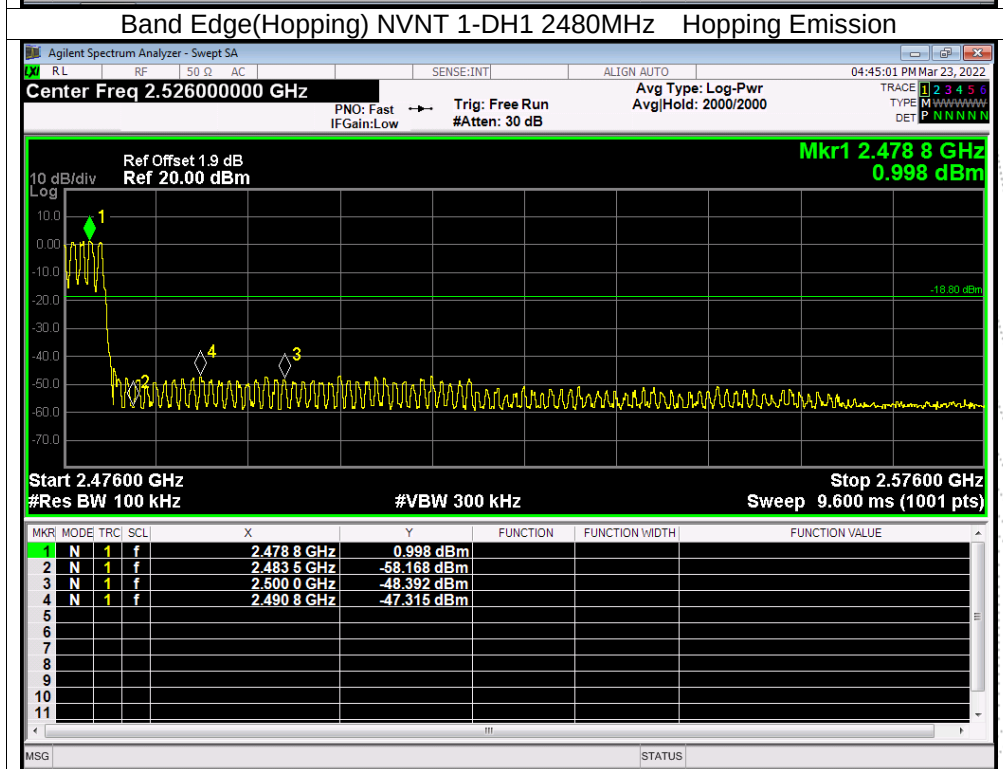
Test Graphs

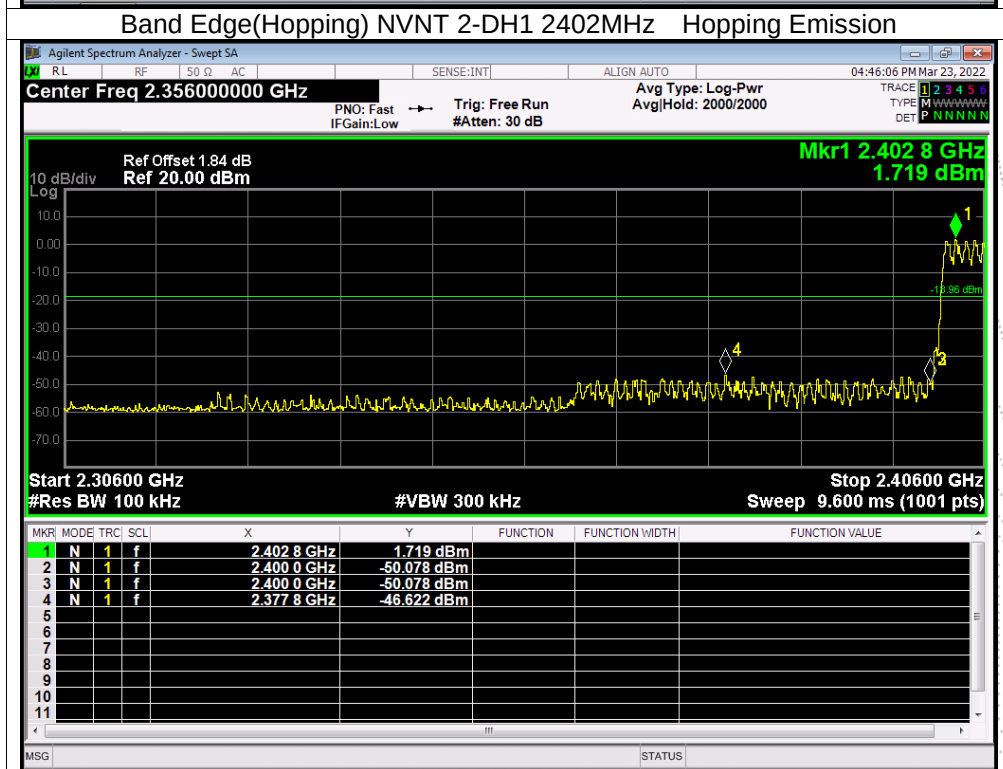
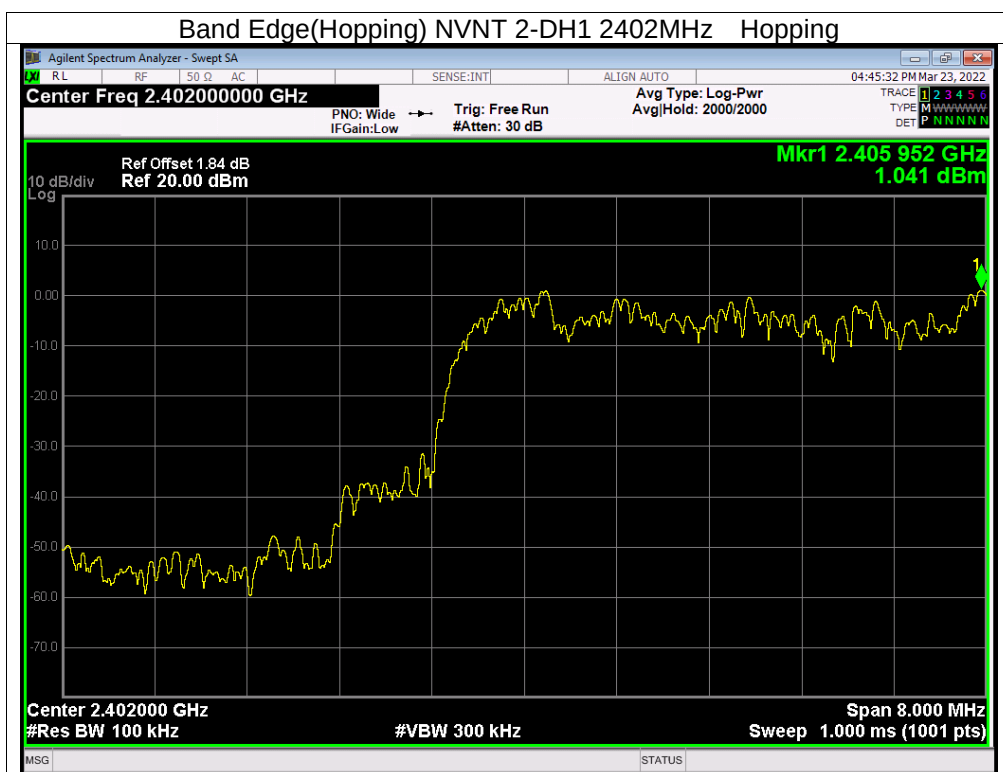
Band Edge(Hopping) NVNT 1-DH1 2402MHz Hopping

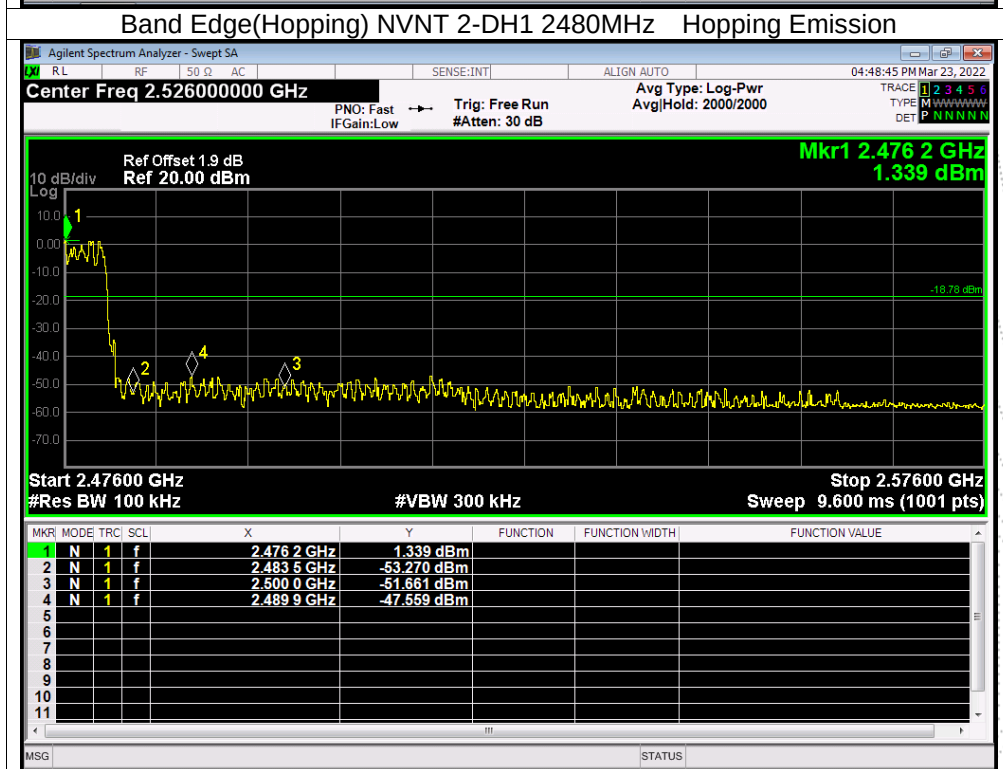
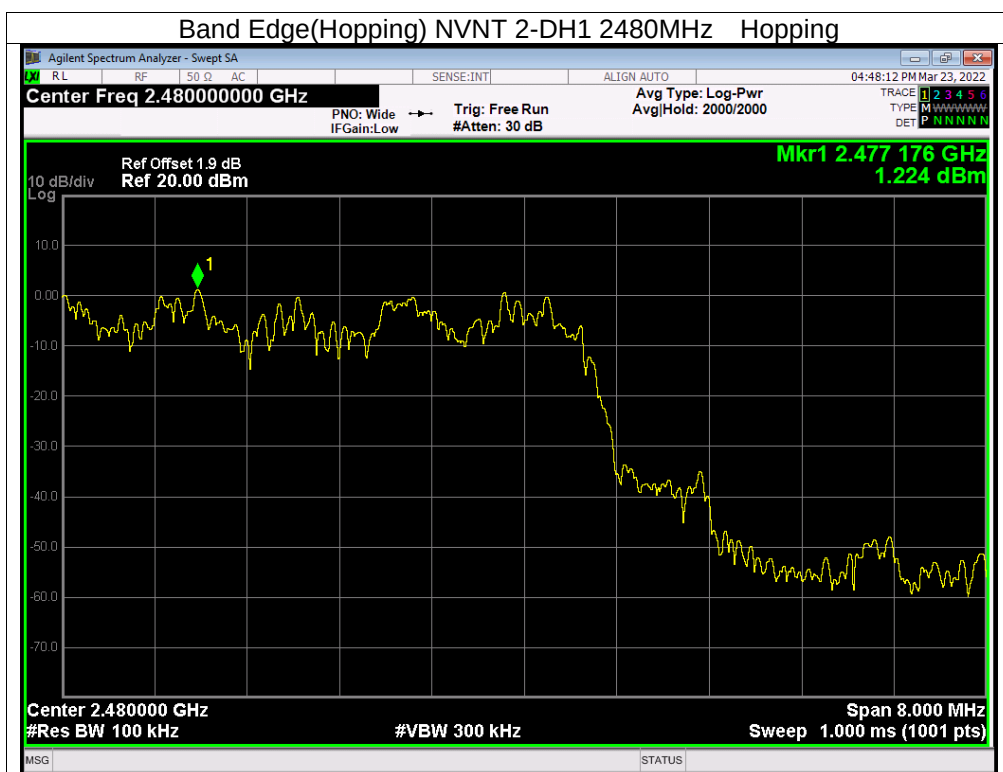


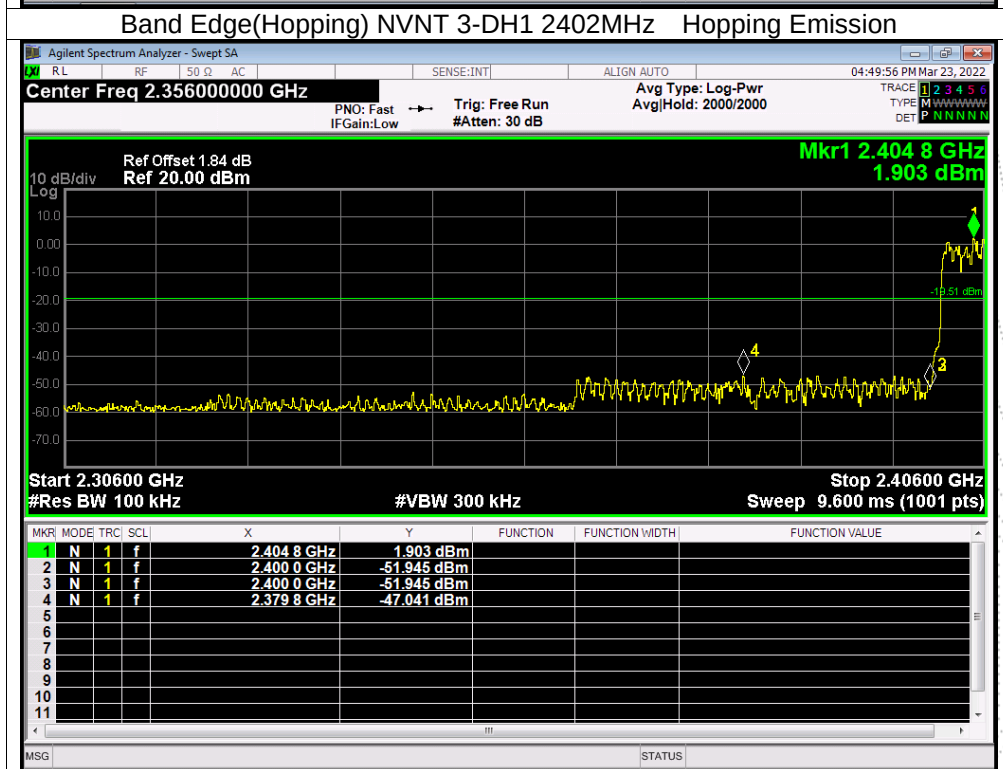
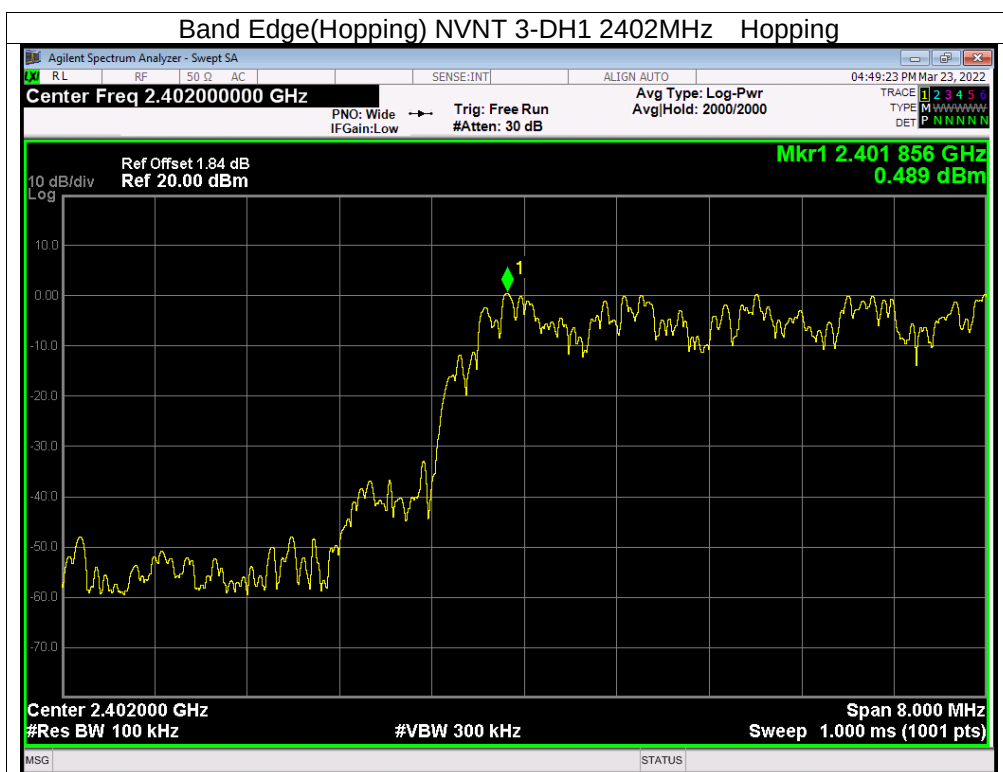
Band Edge(Hopping) NVNT 1-DH1 2402MHz Hopping Emission

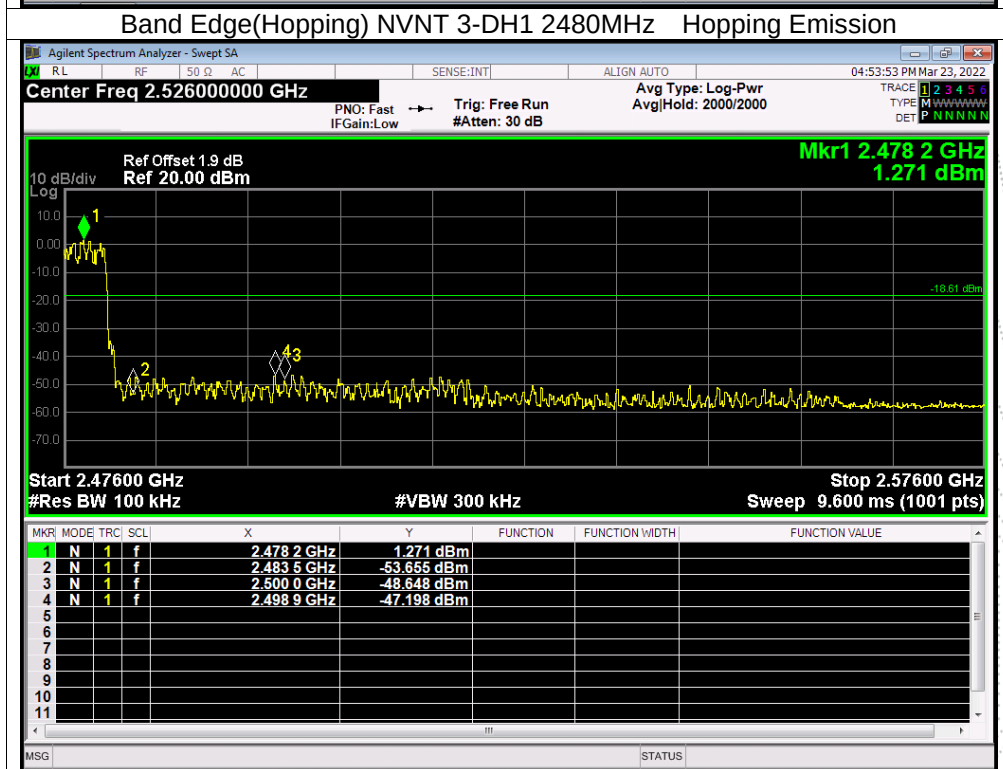












10. 20 DB Bandwidth

10.1 Block Diagram Of Test Setup



10.2 Limit

N/A

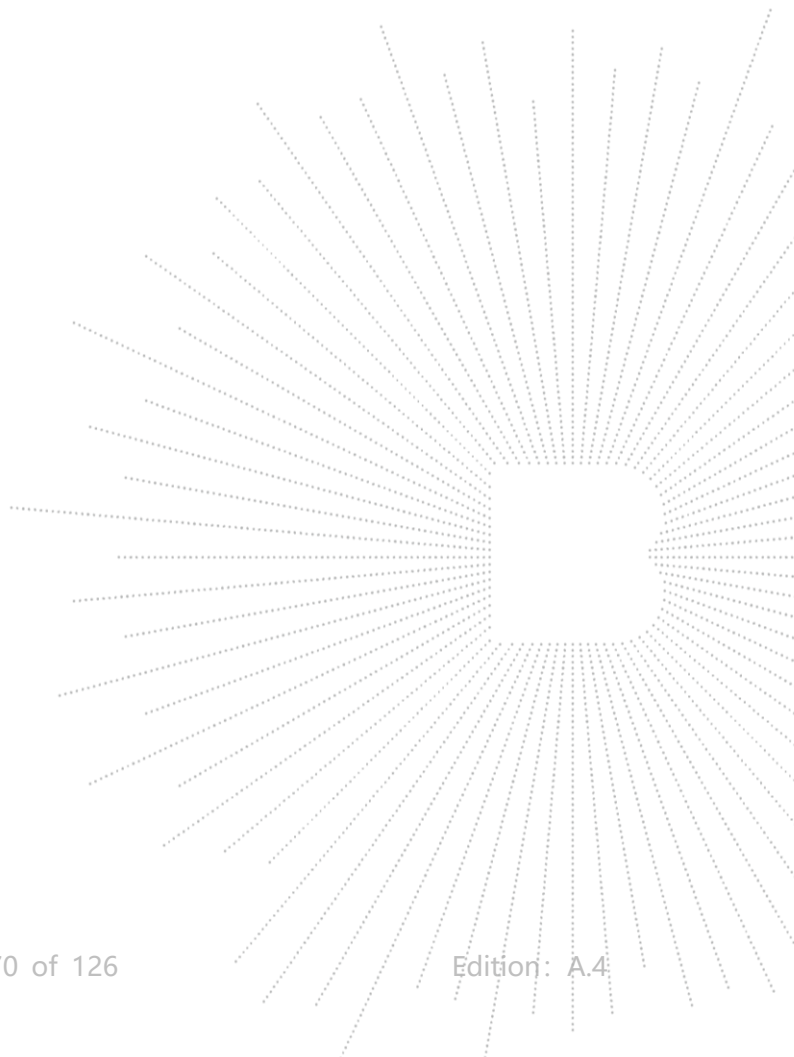
10.3 Test Procedure

1. Set RBW = 30kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission. .

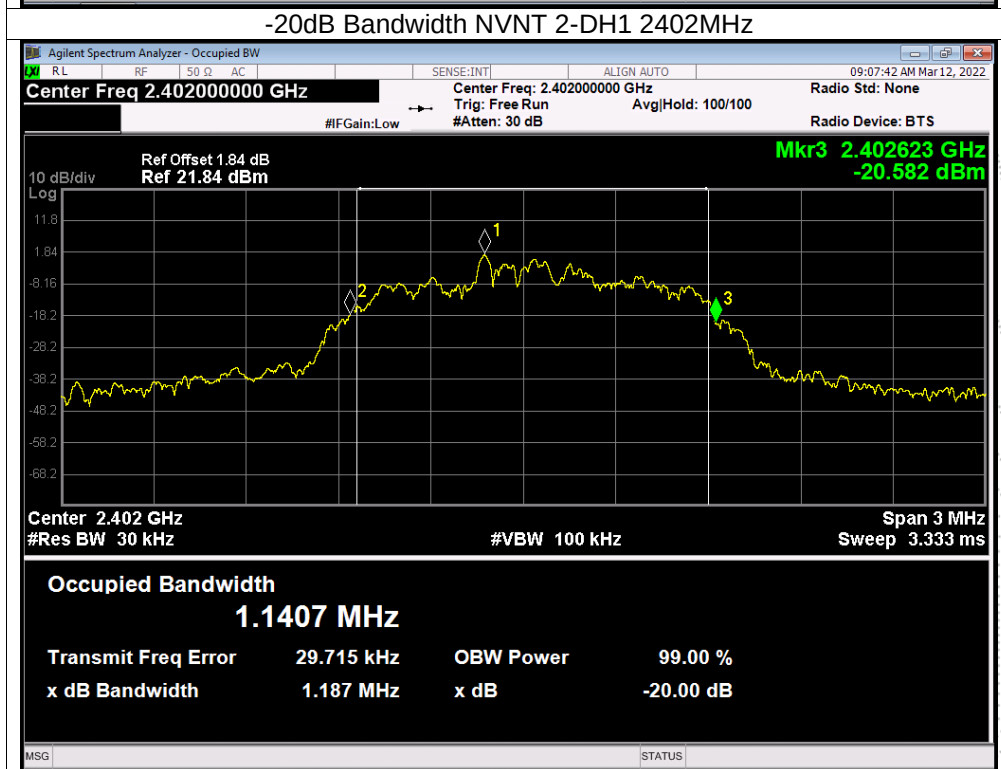
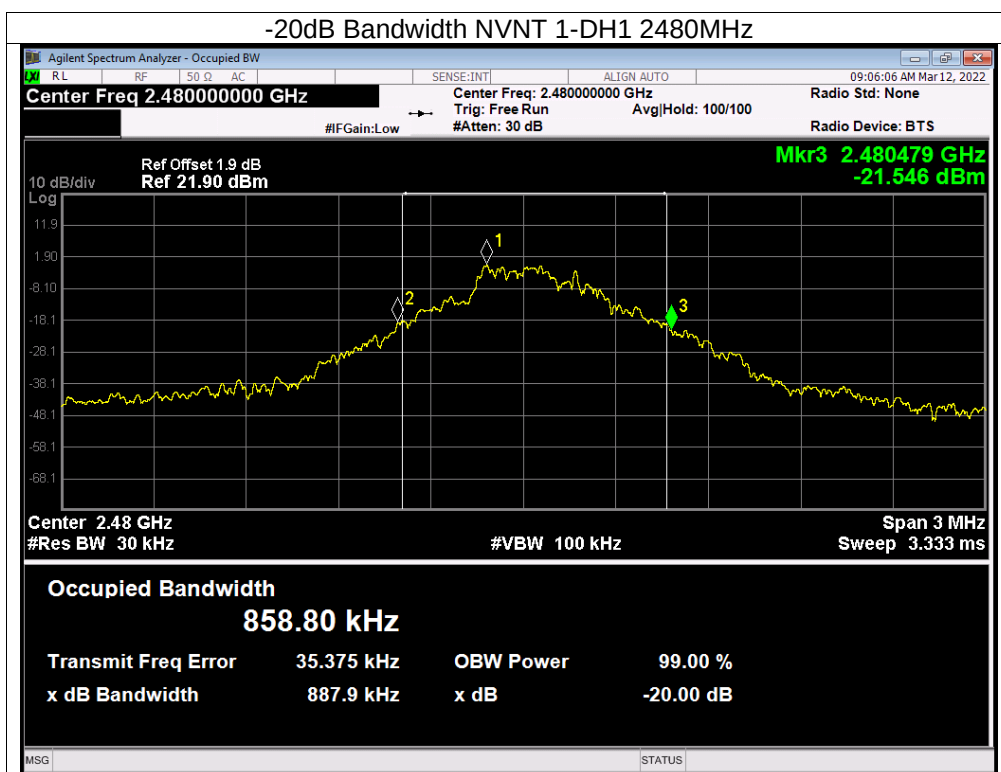
10.4 Test Result

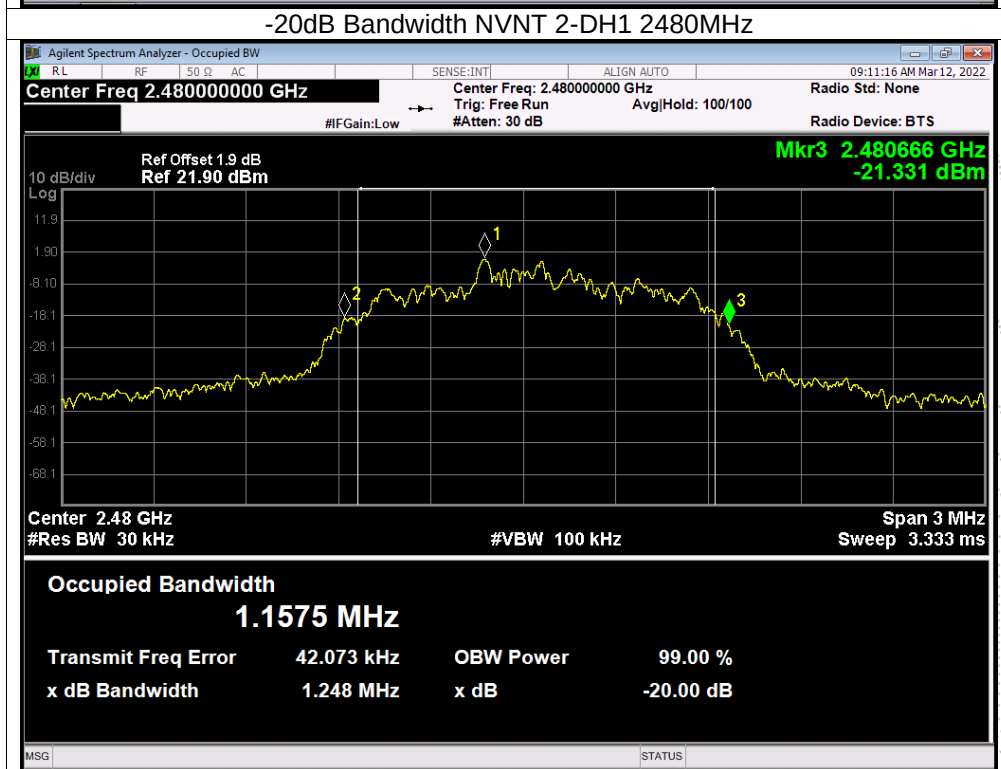
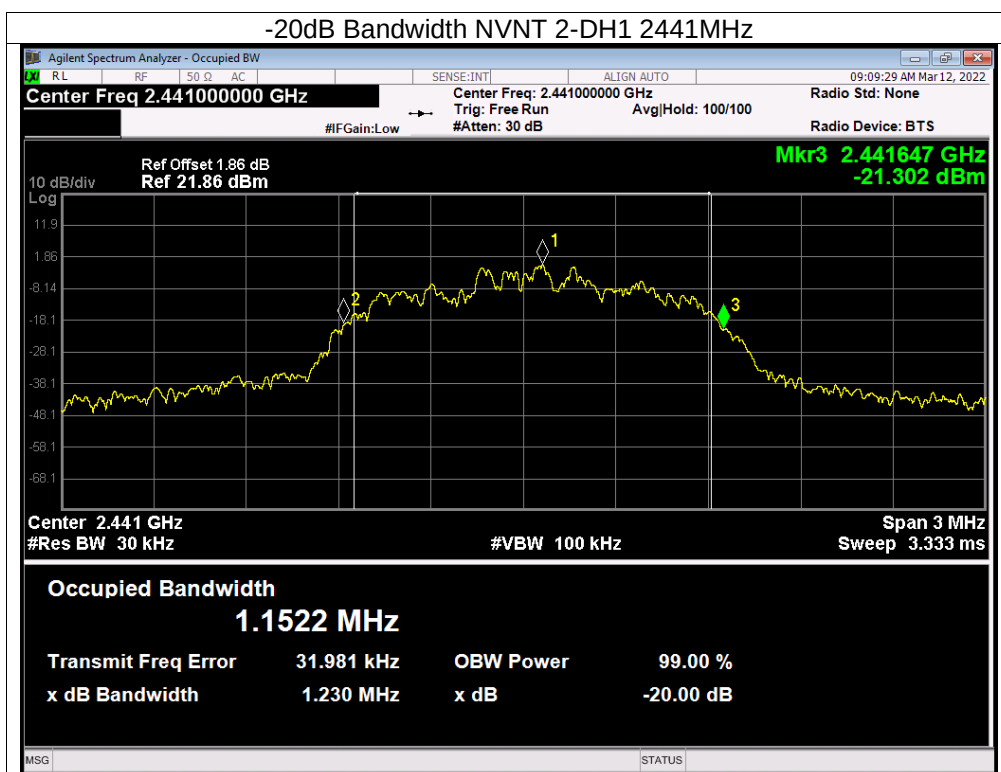
Temperature :	26℃	Relative Humidity :	54%
Test Voltage :	DC 3.7V	Remark	N/A

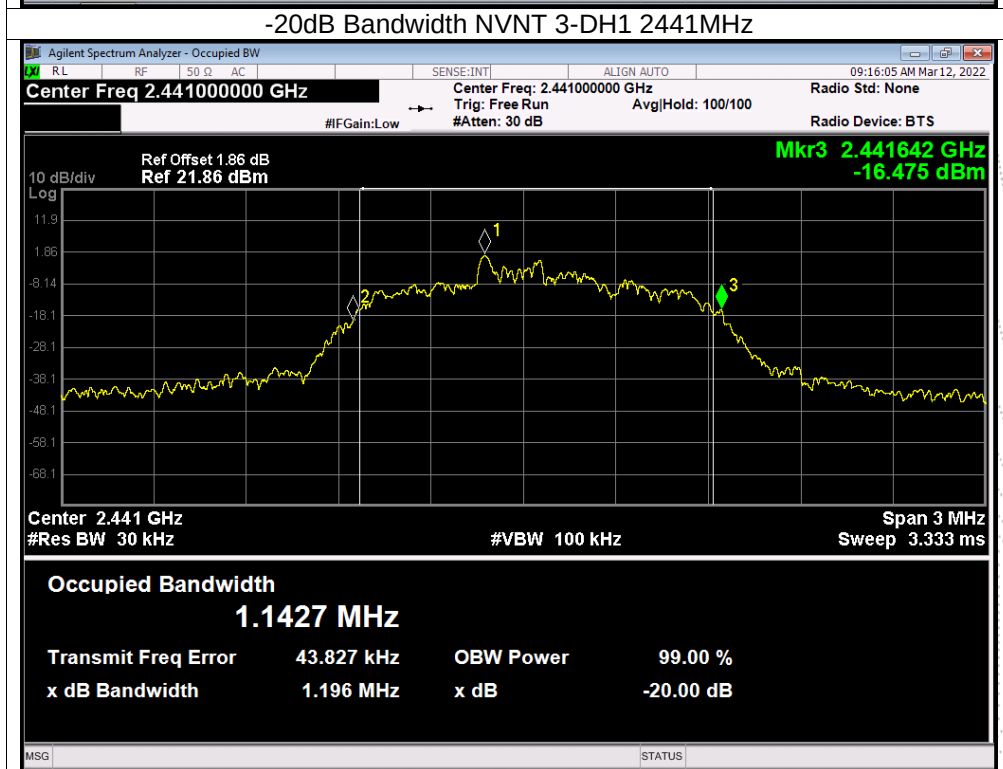
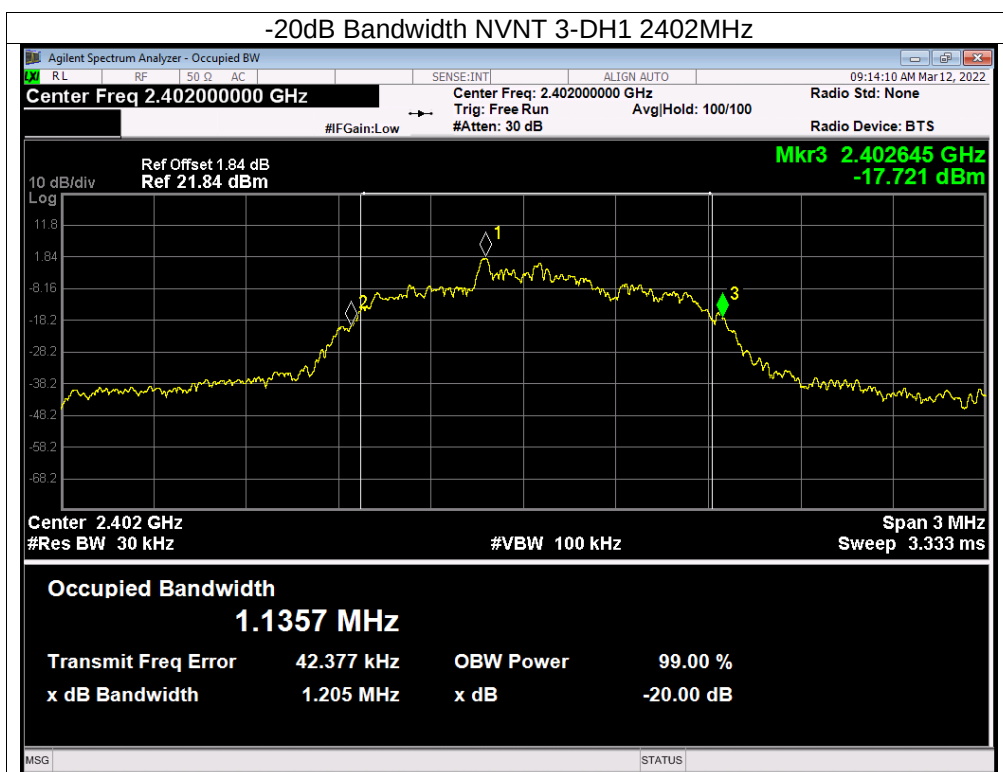
Modulation	Test Channel	Bandwidth(MHz) Left	Bandwidth(MHz) Right
GFSK	Low	0.903	0.918
GFSK	Middle	0.938	0.861
GFSK	High	0.888	0.879
$\pi/4$ DQPSK	Low	1.187	1.284
$\pi/4$ DQPSK	Middle	1.23	1.261
$\pi/4$ DQPSK	High	1.248	1.277
8DPSK	Low	1.205	1.222
8DPSK	Middle	1.196	1.22
8DPSK	High	1.2	1.218

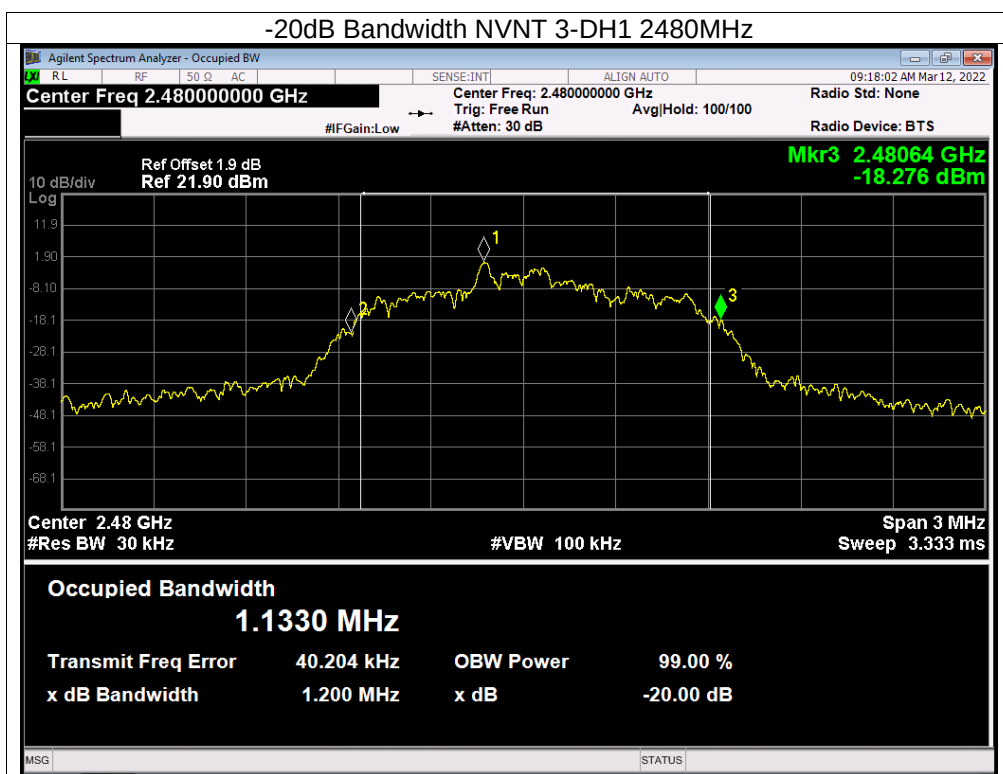




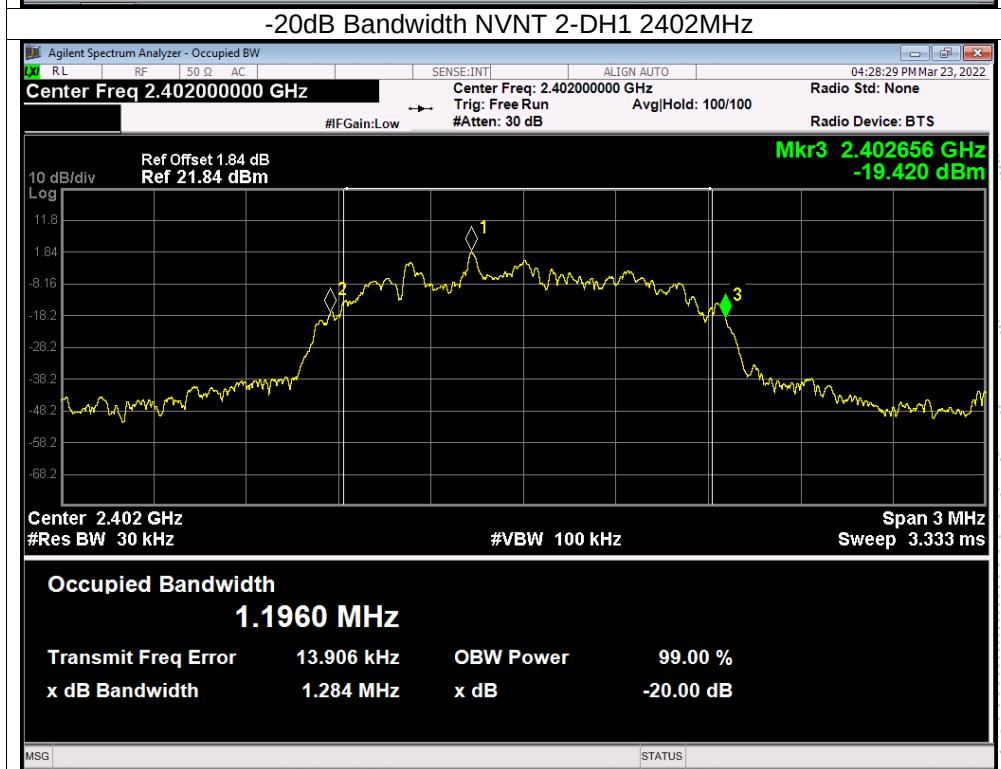
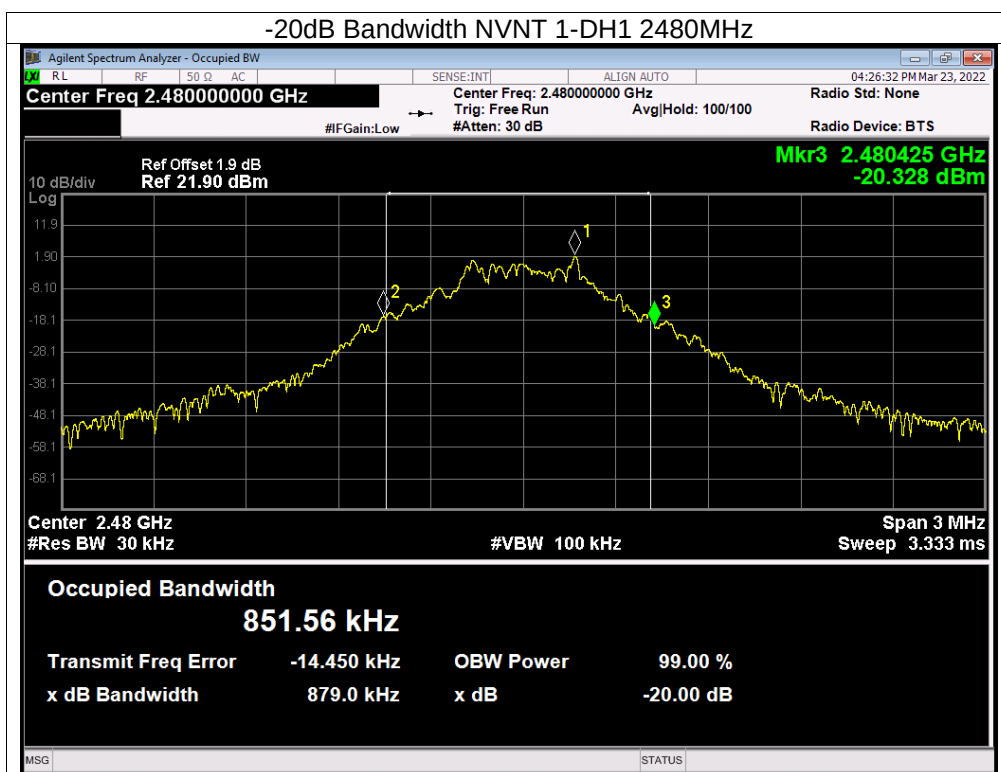


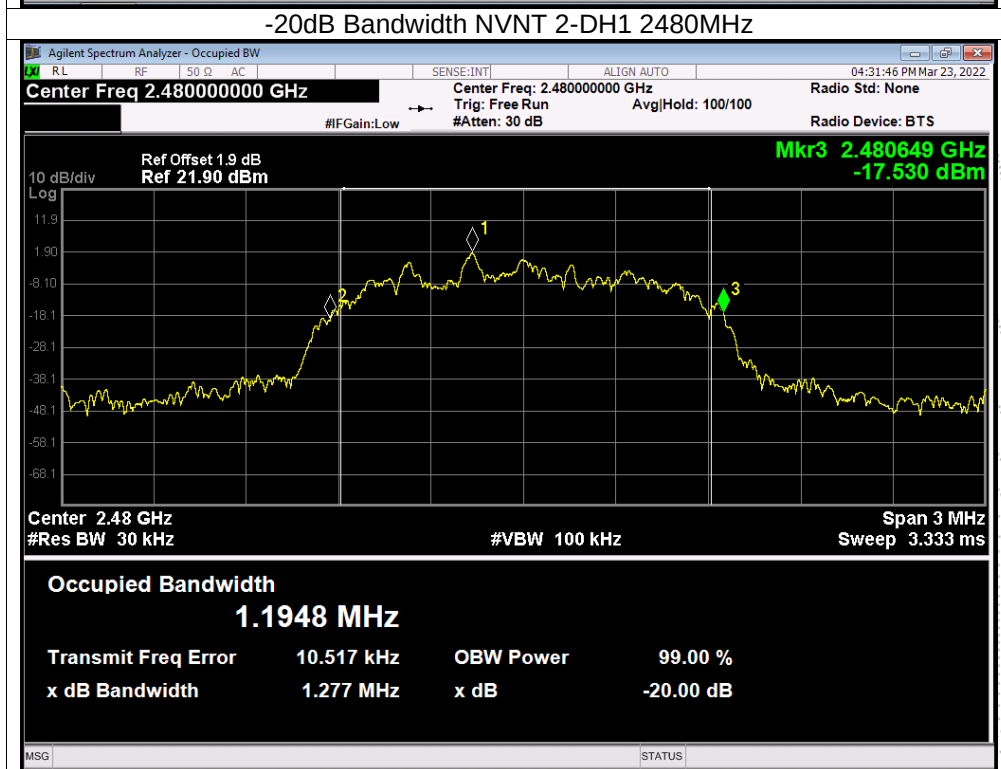
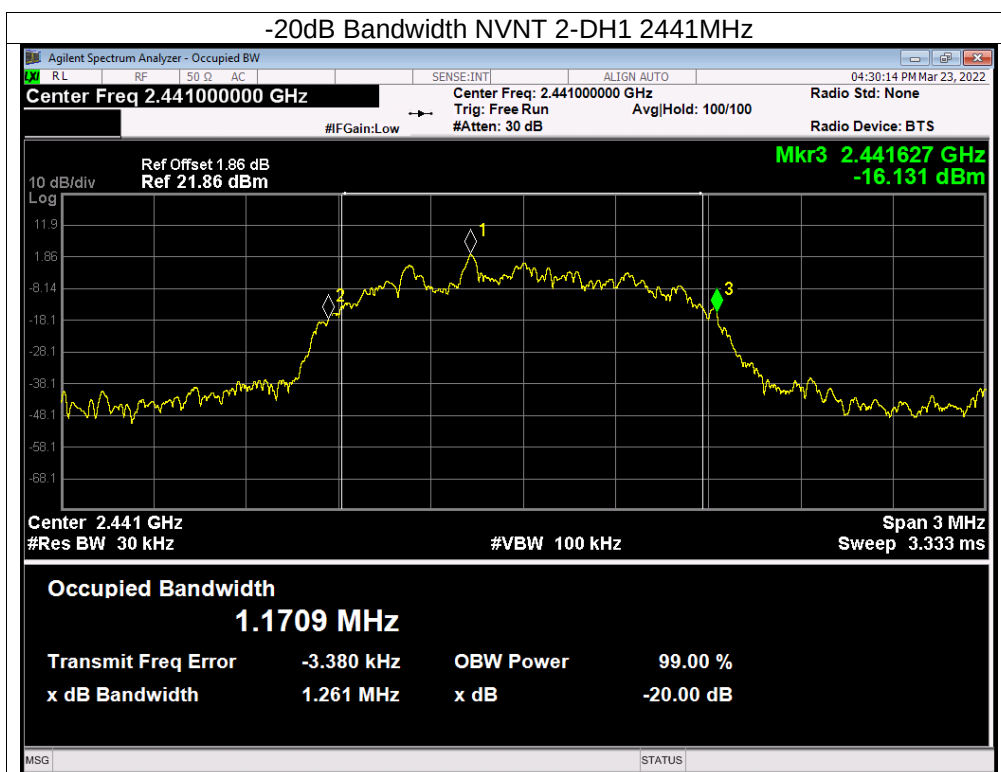


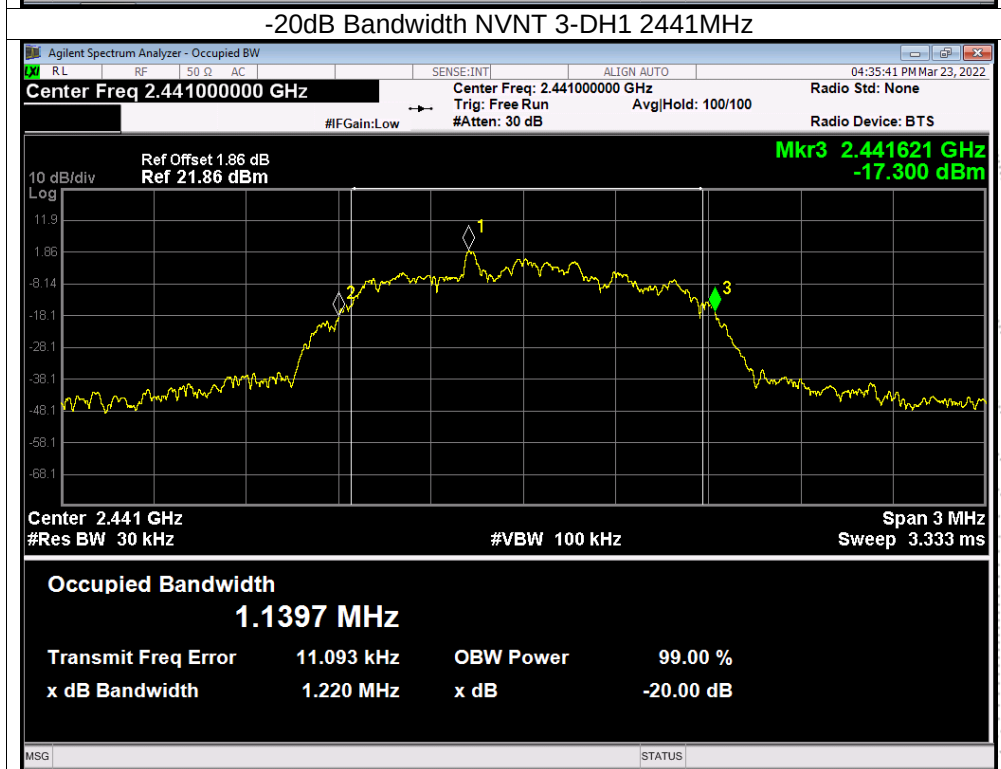
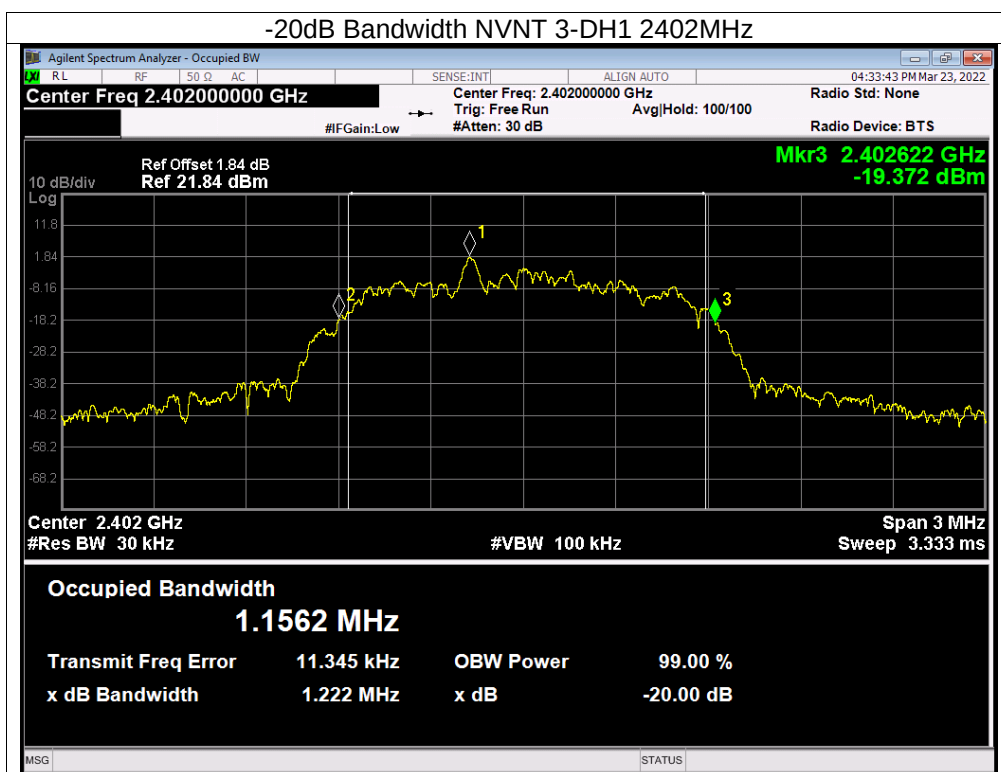


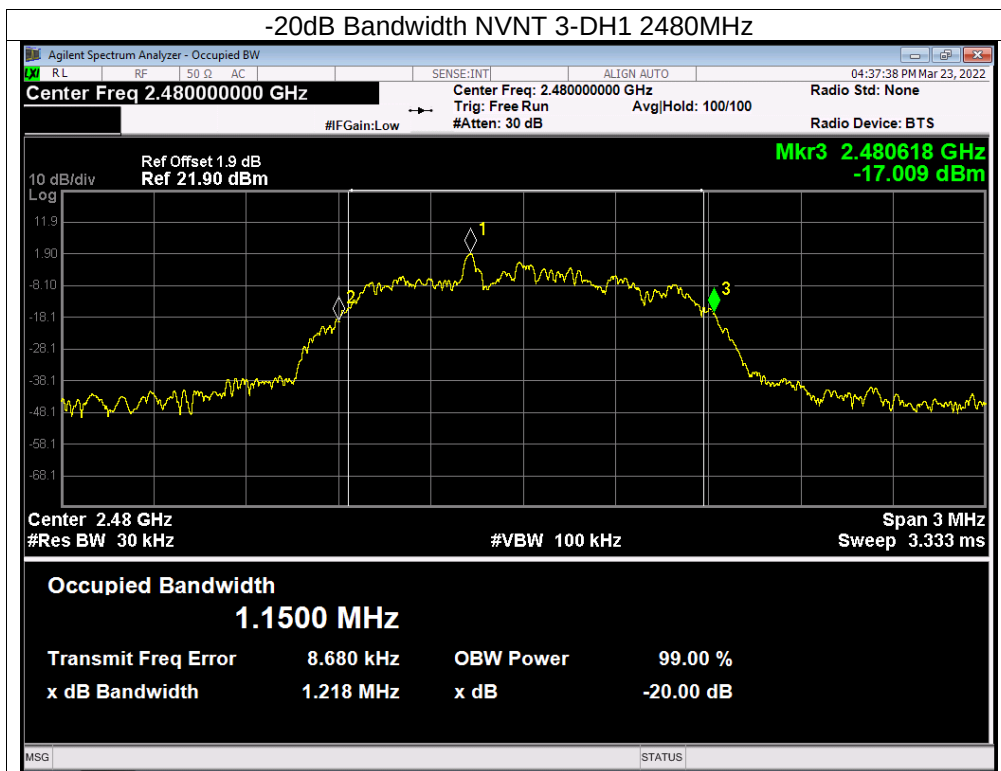






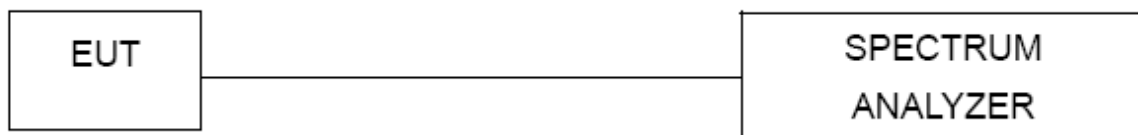






11. Maximum Peak Output Power

11.1 Block Diagram Of Test Setup



11.2 Limit

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS

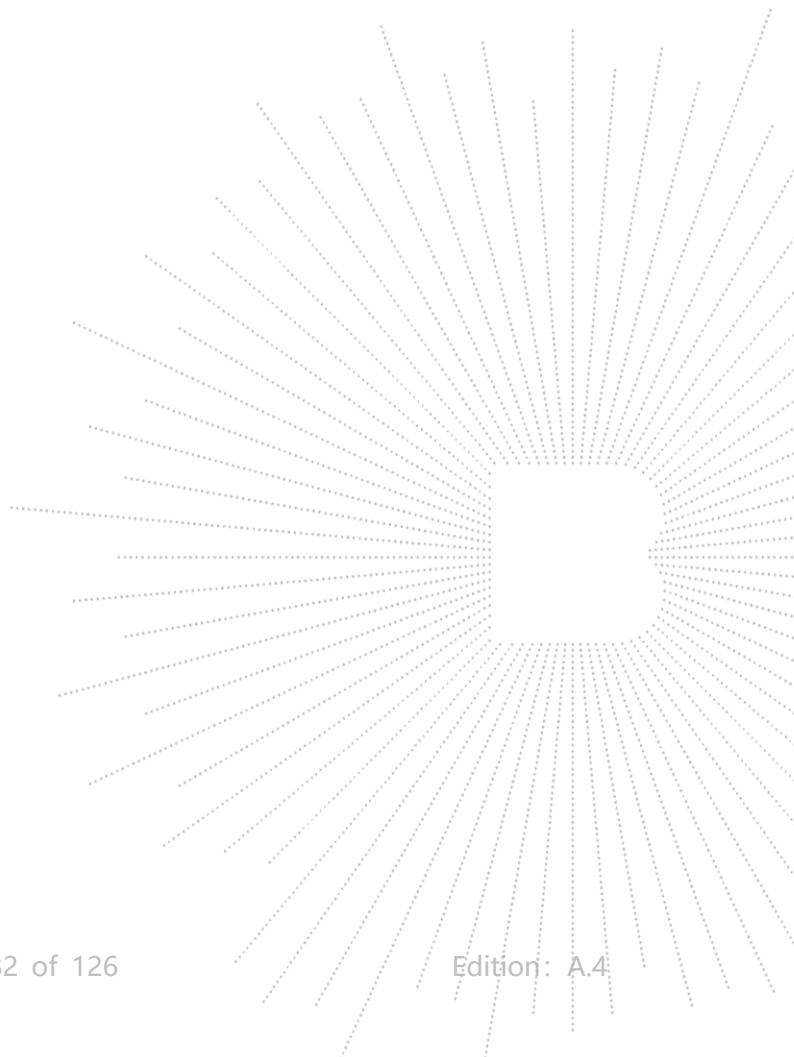
11.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

11.4 Test Result

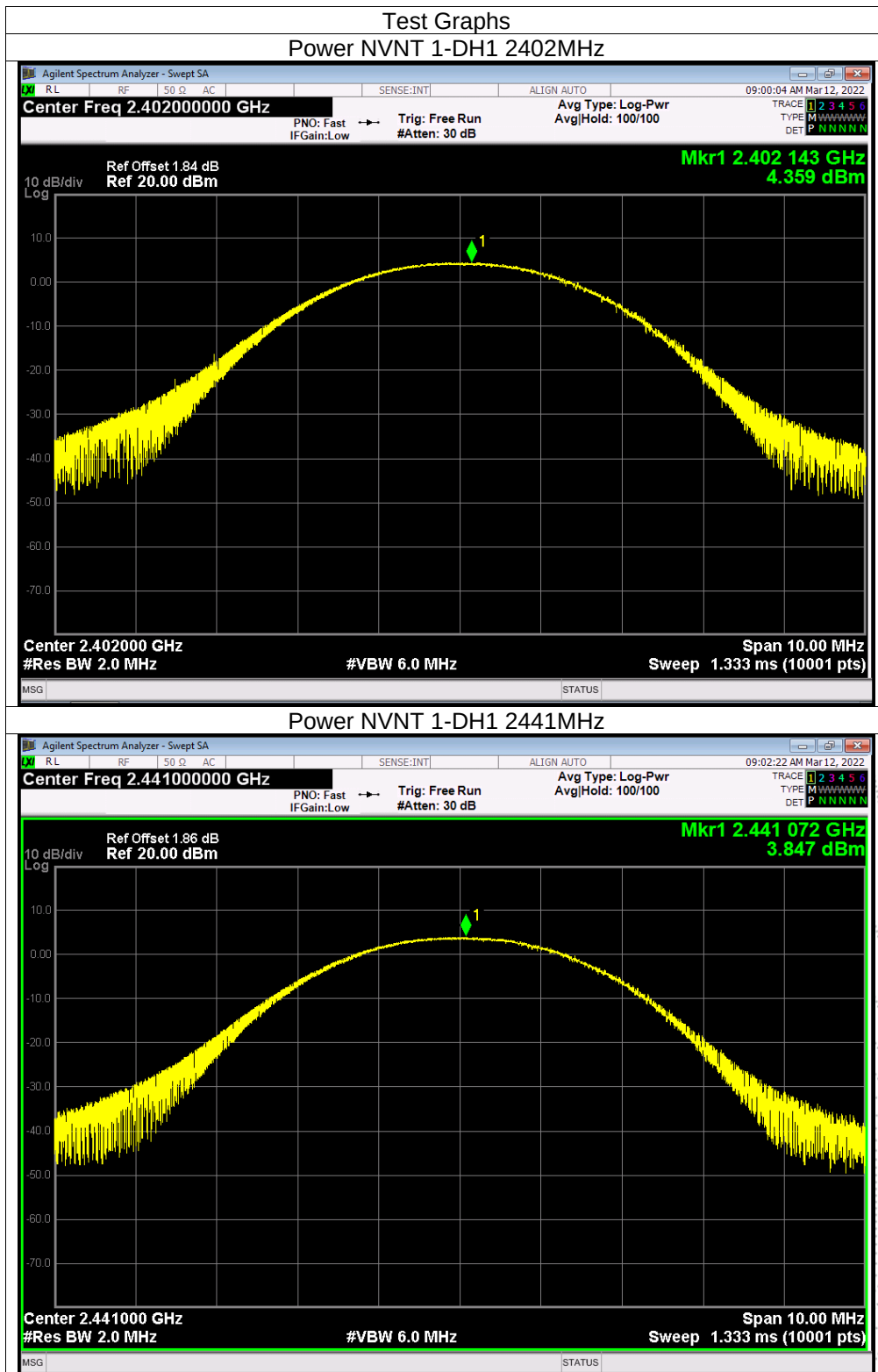
Temperature :	26℃	Relative Humidity :	54%
Test Voltage :	DC 3.7V	Remark:	N/A

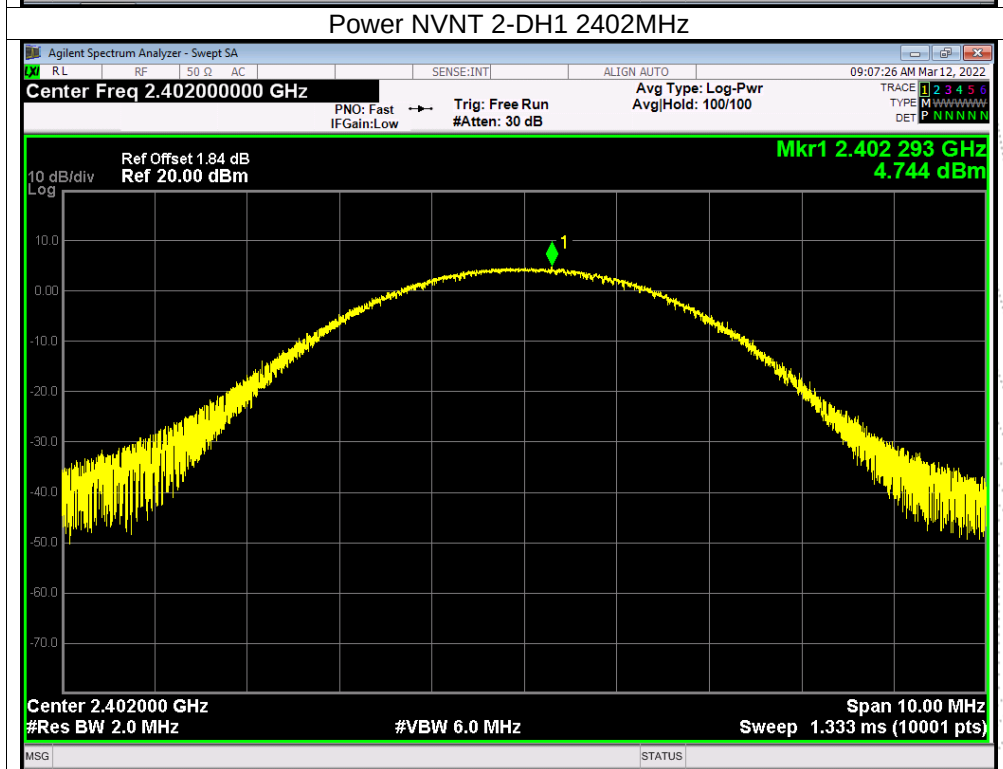
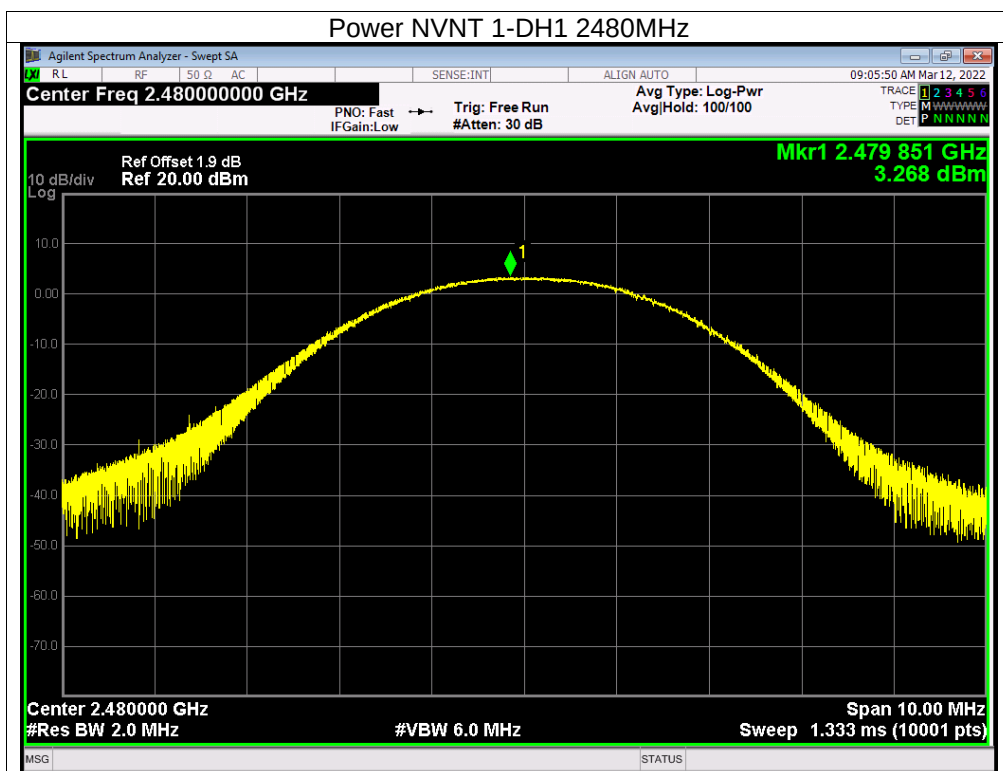
Modulation	Test Channel	Output Power (dBm) Left	Output Power (dBm) Right	Limit (dBm)
GFSK	Low	4.36	3.69	21
GFSK	Middle	3.85	4.43	21
GFSK	High	3.27	3.93	21
$\pi/4$ DQPSK	Low	4.74	5.03	21
$\pi/4$ DQPSK	Middle	4.04	5.64	21
$\pi/4$ DQPSK	High	3.63	5.11	21
8DPSK	Low	5.26	5.27	21
8DPSK	Middle	4.76	5.96	21
8DPSK	High	4.14	5.38	21

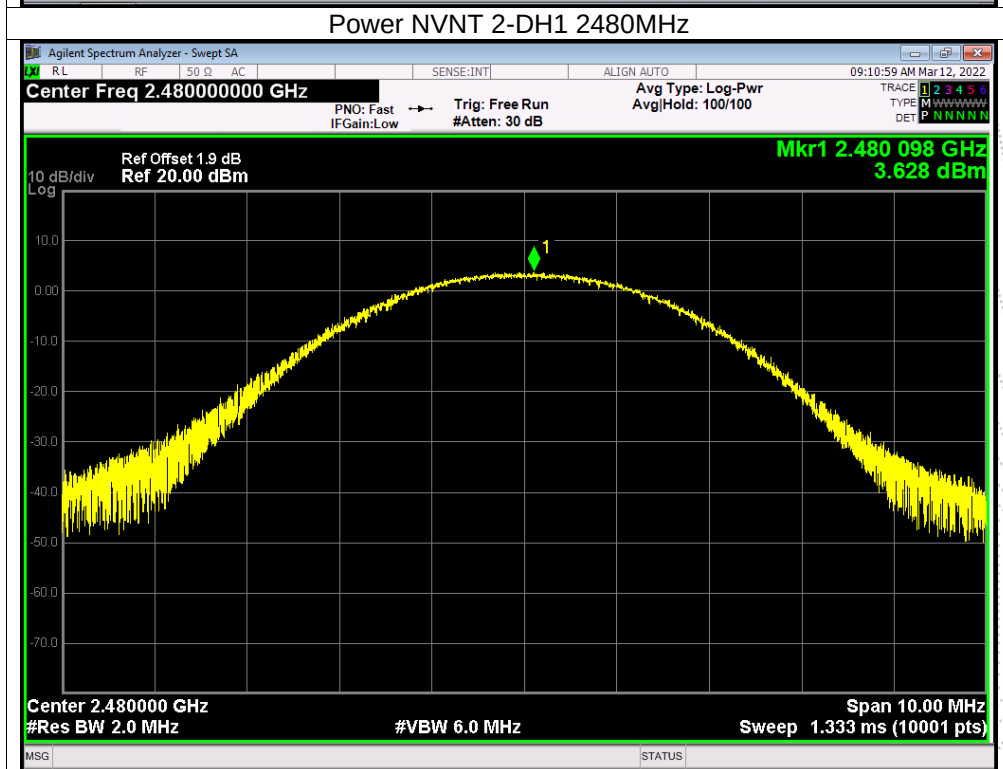
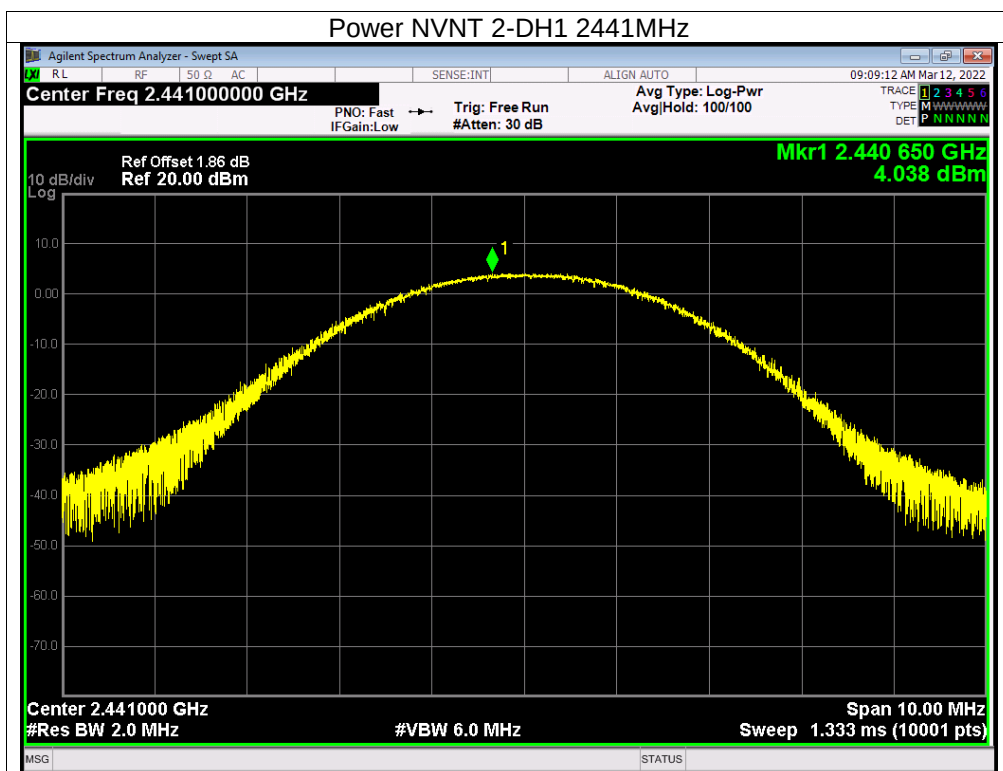


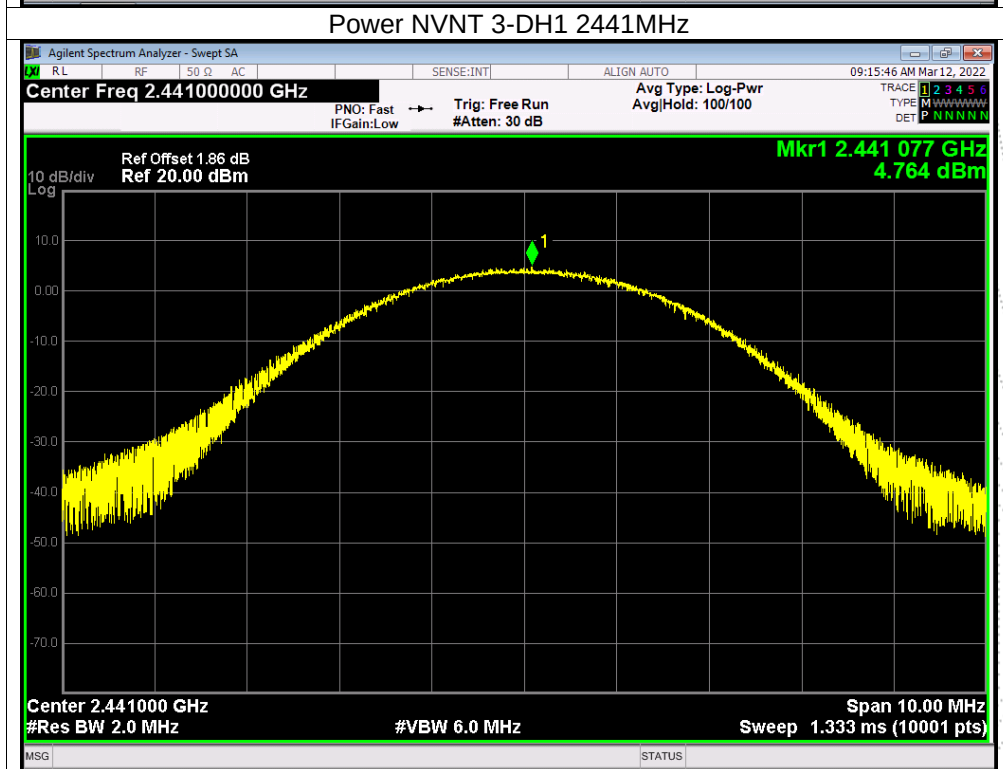
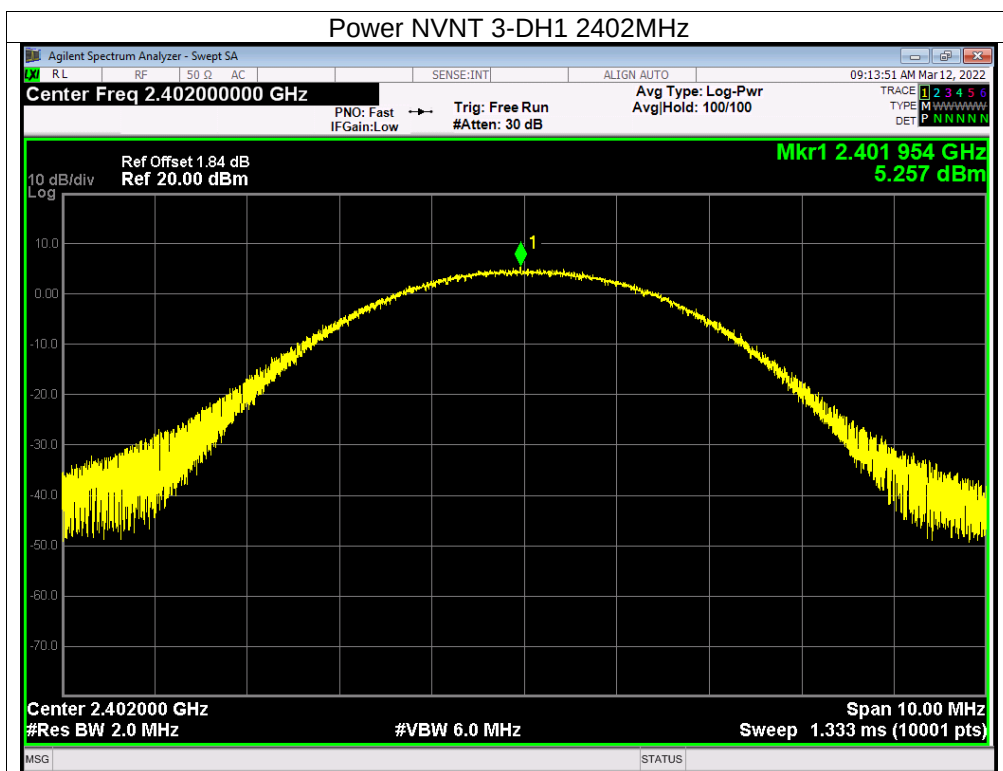


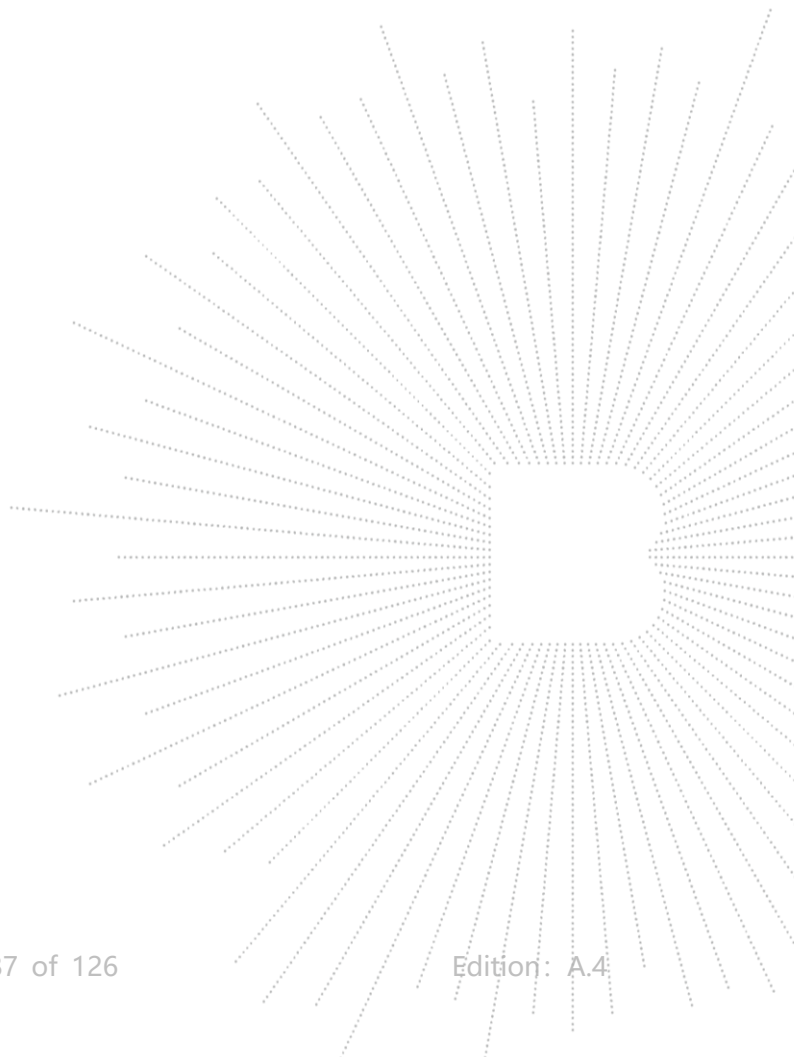
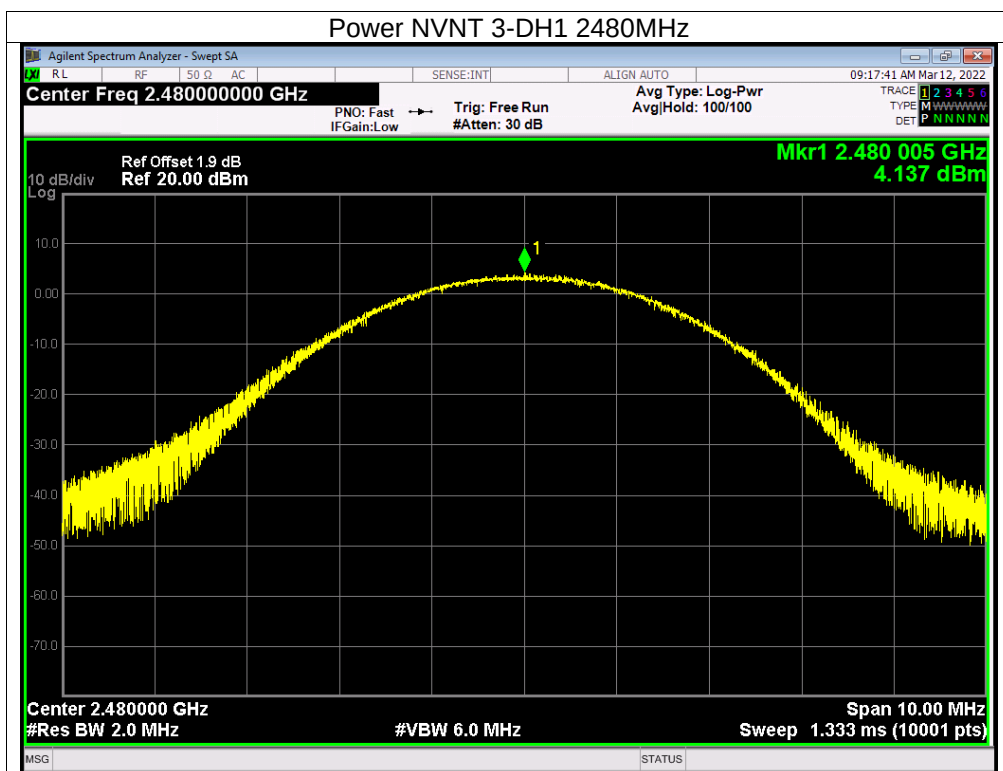
Left





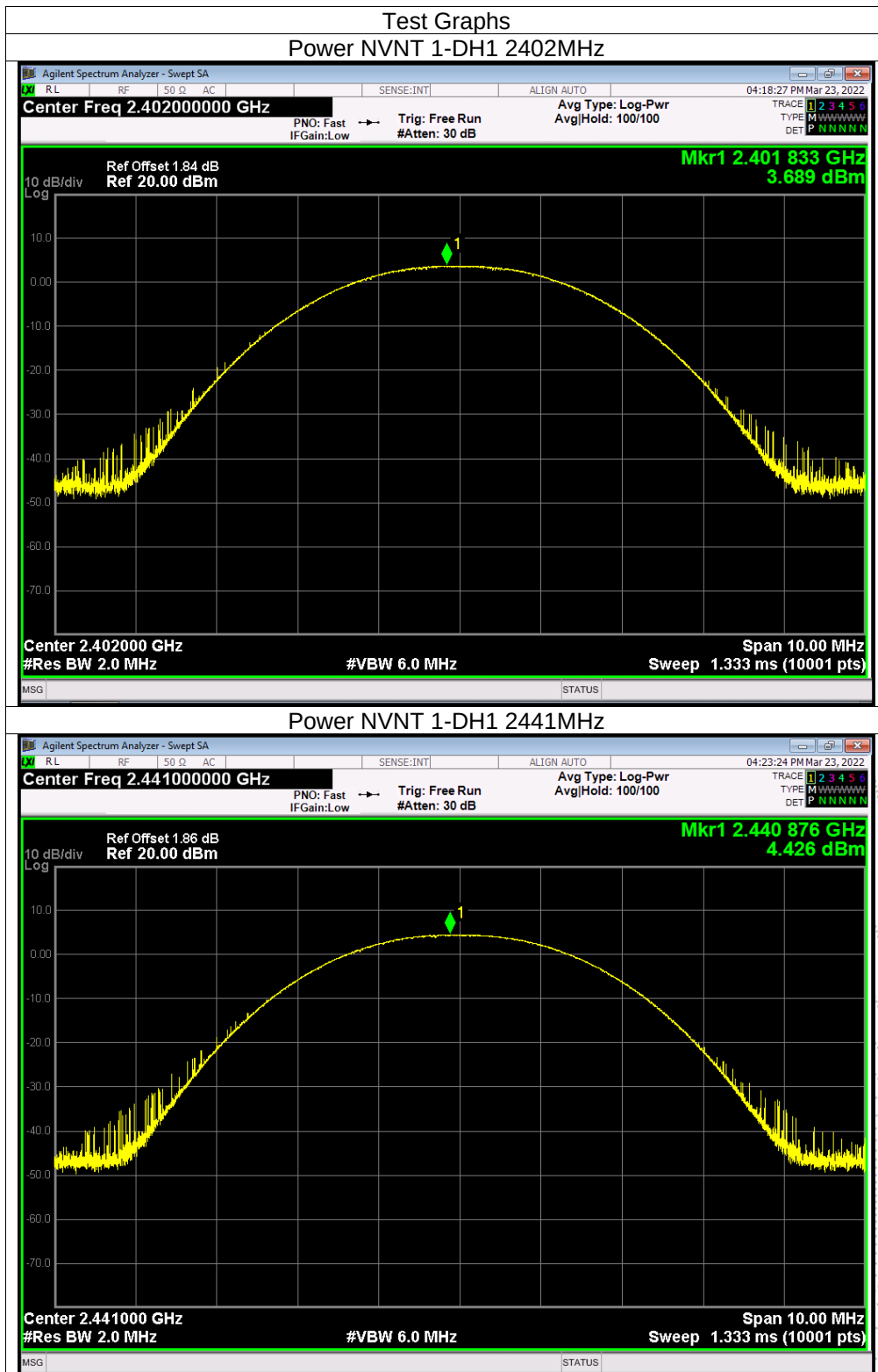


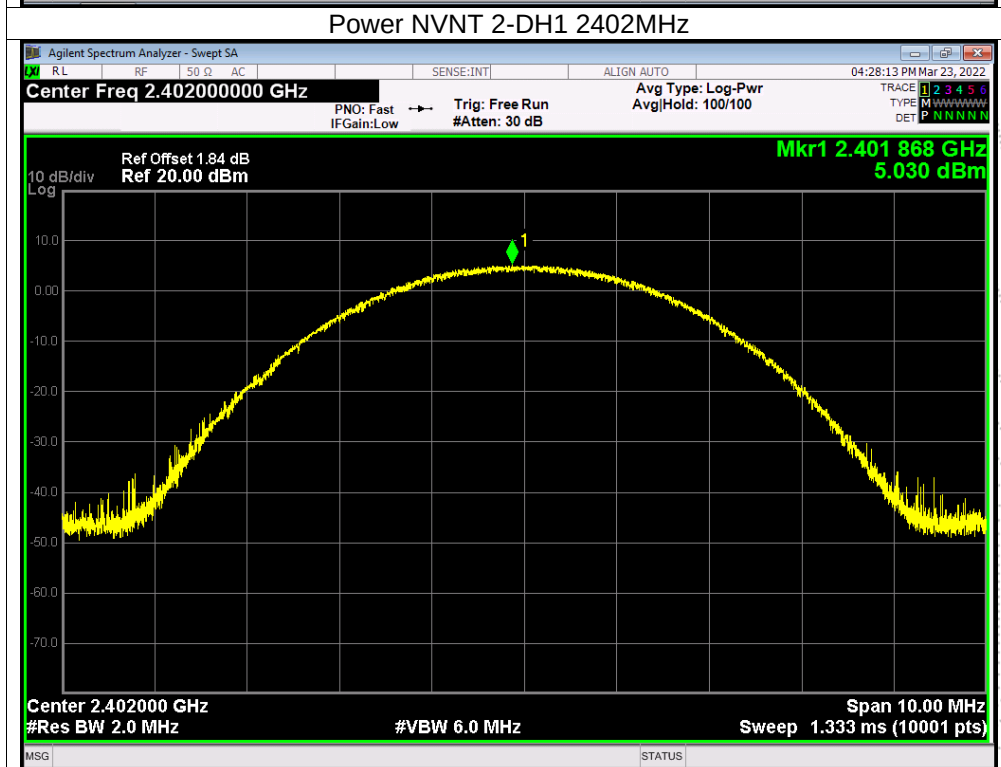
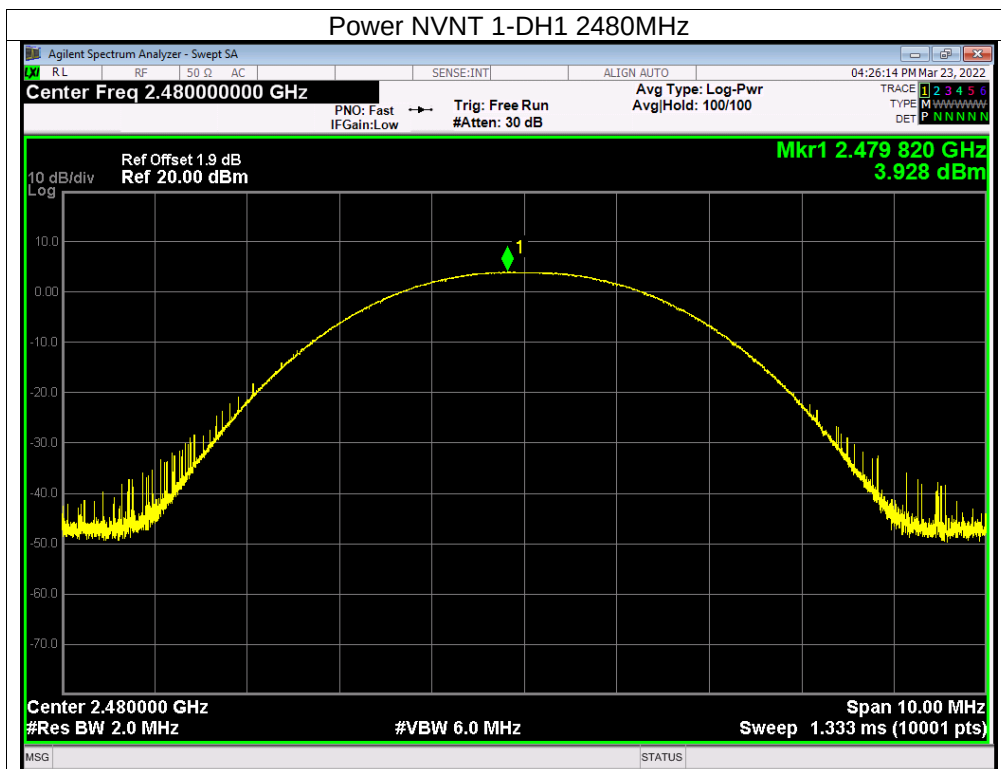


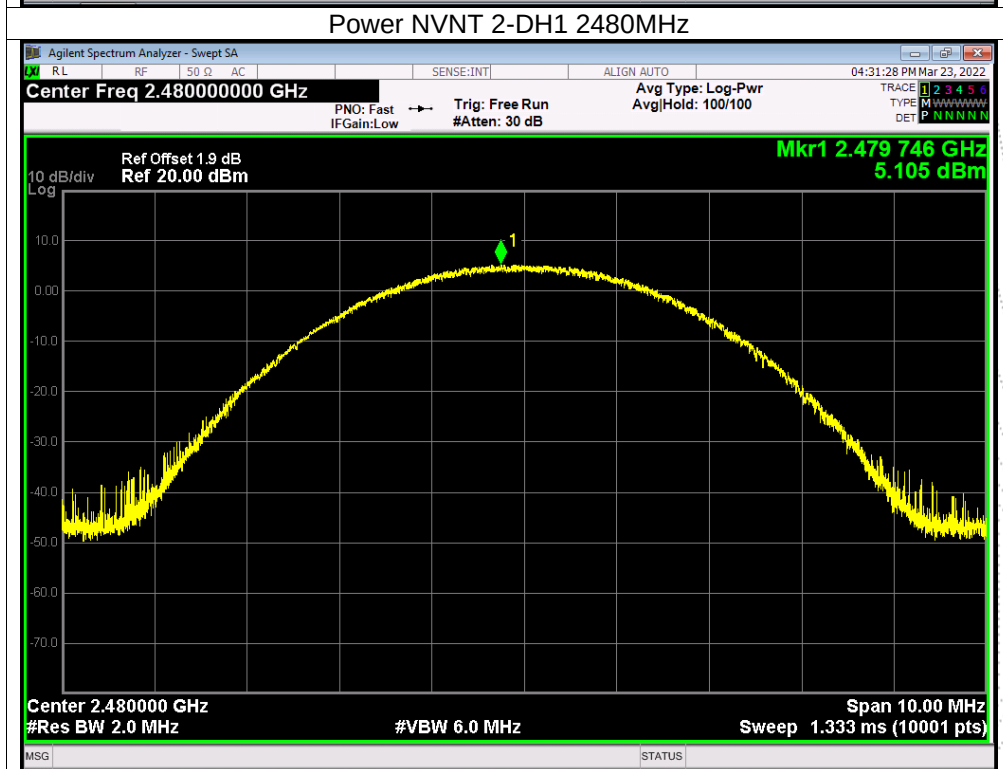
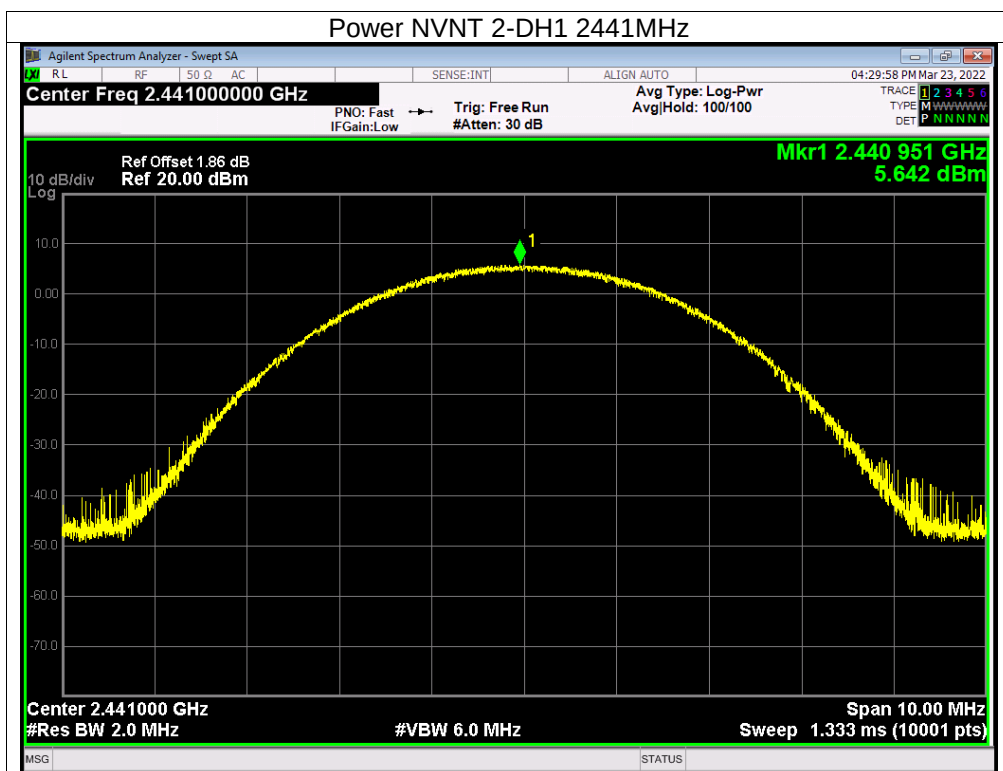


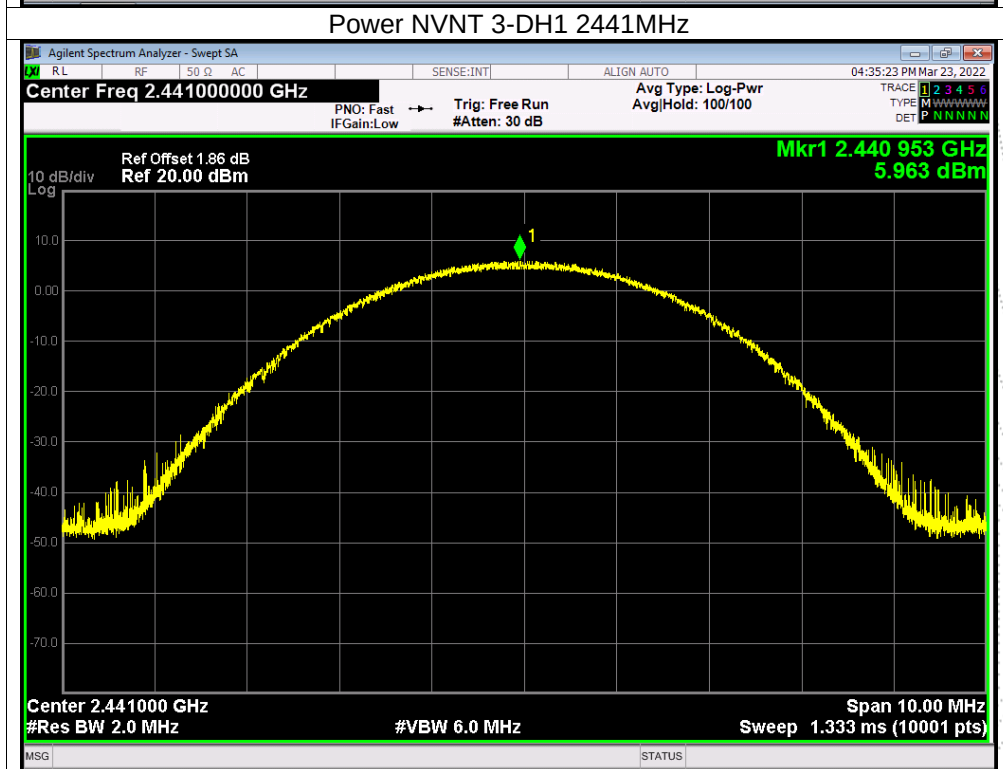
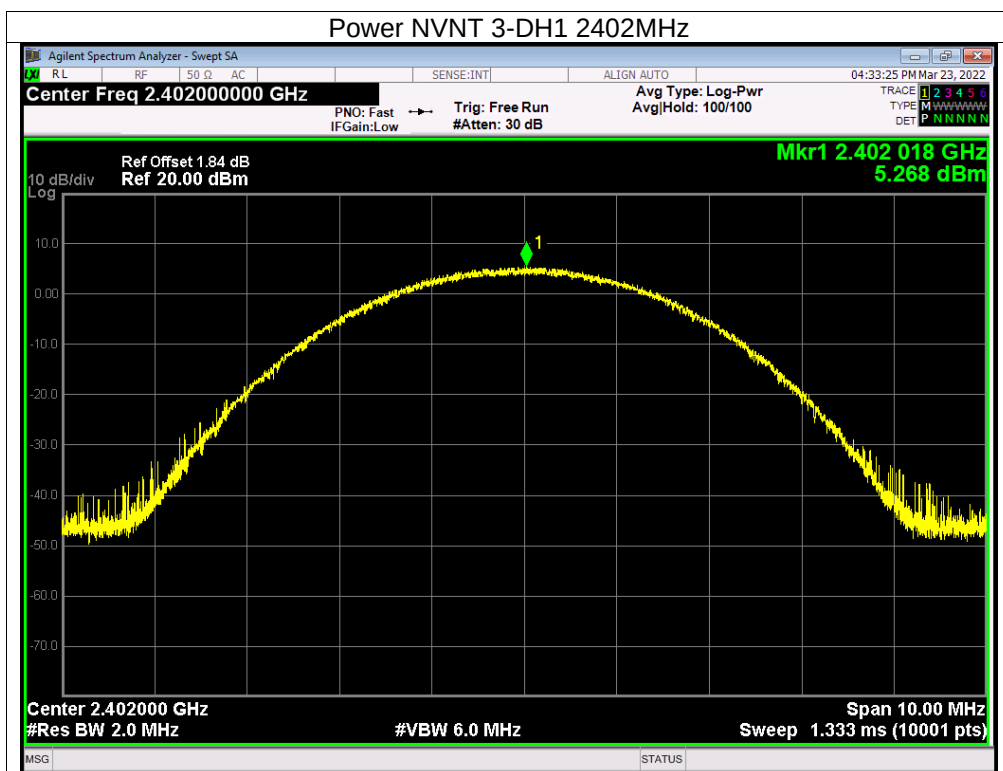


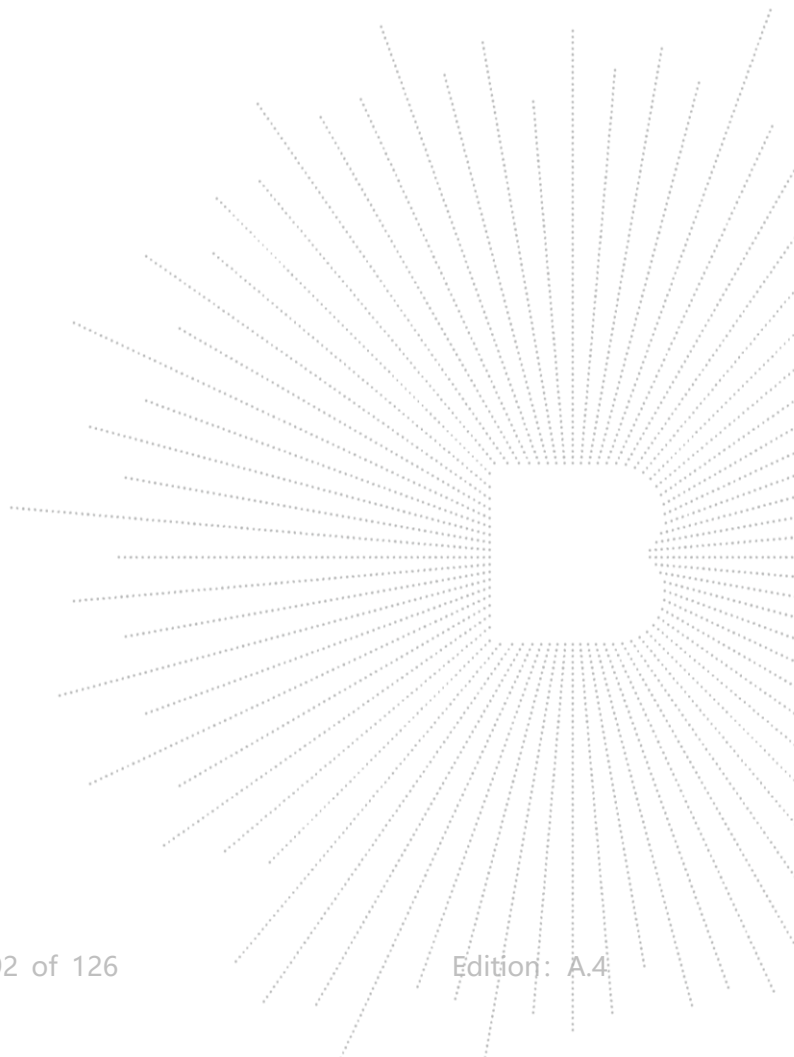
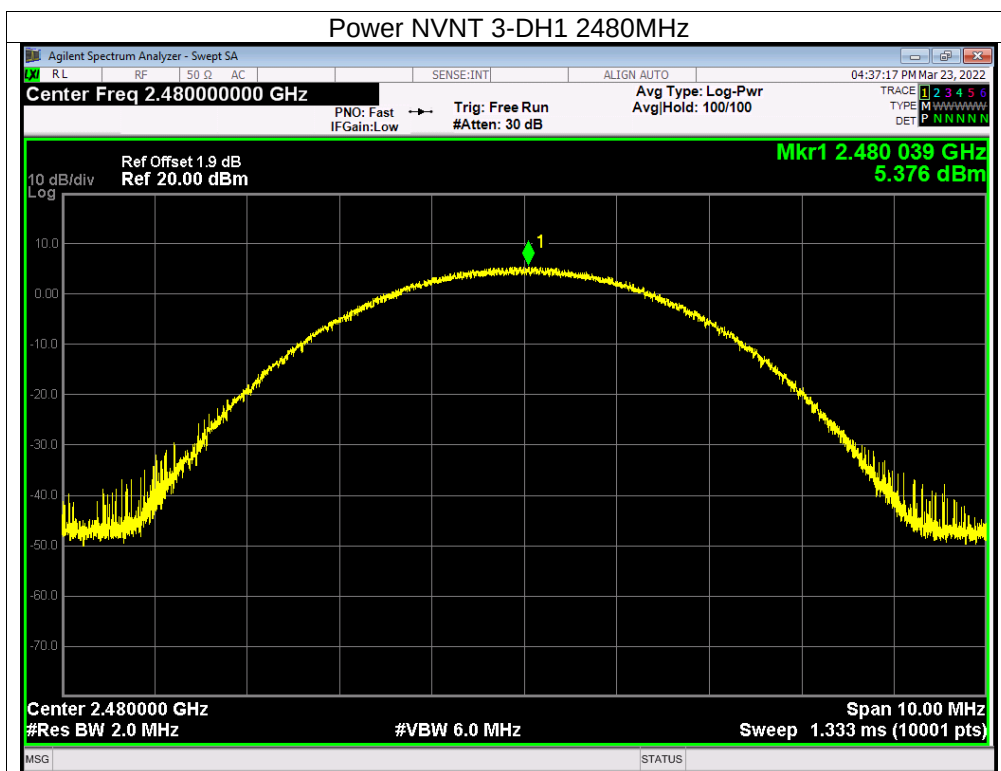
Right











12. Hopping Channel Separation

12.1 Block Diagram Of Test Setup



12.2 Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 0.125W.

12.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 30kHz. VBW = 100kHz , Span = 2.0MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

12.4 Test Result

Left

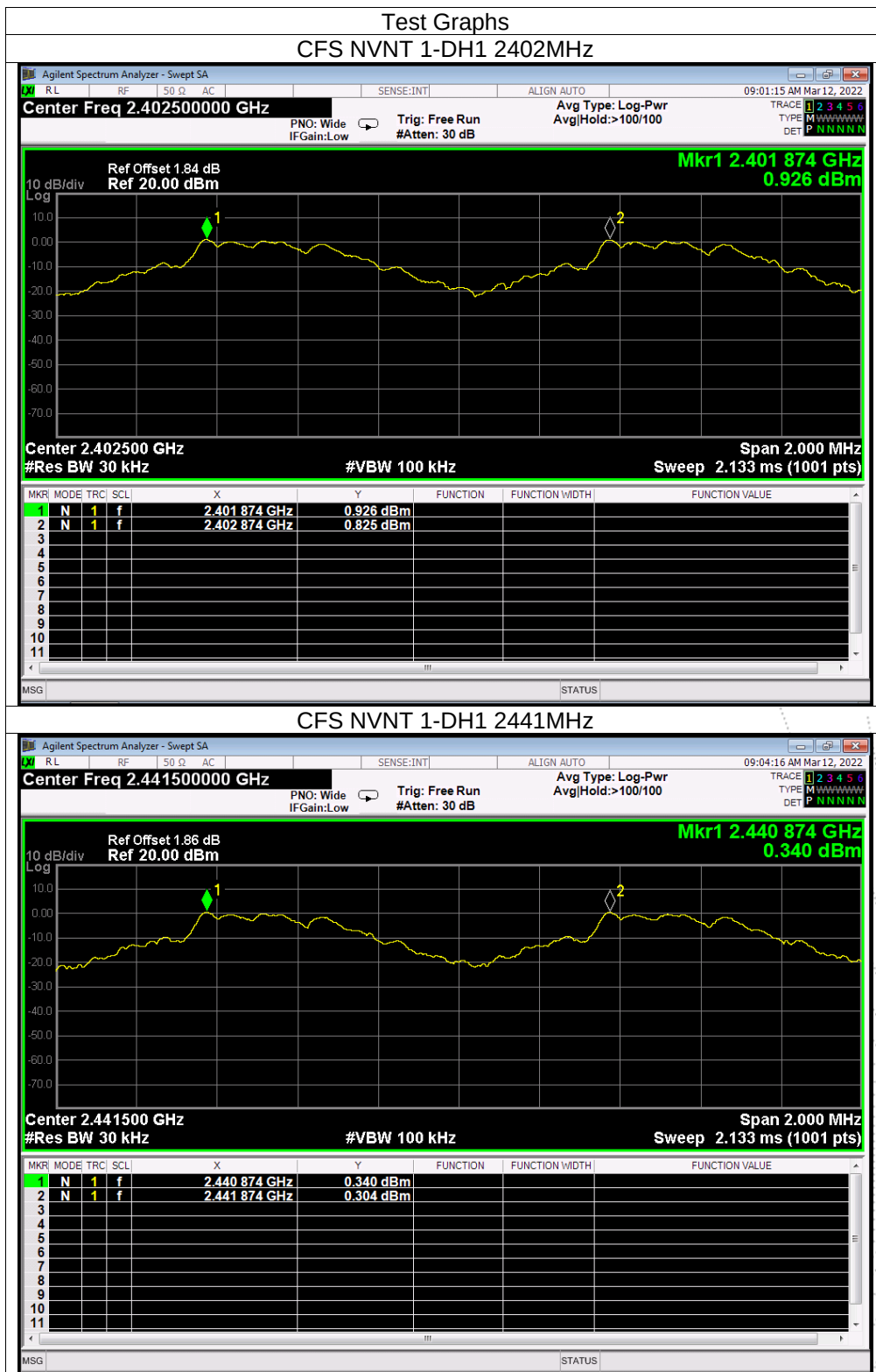
Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	1	0.903	PASS
GFSK	Middle	1	0.938	PASS
GFSK	High	0.998	0.888	PASS
$\pi/4$ DQPSK	Low	1.002	0.791	PASS
$\pi/4$ DQPSK	Middle	1	0.820	PASS
$\pi/4$ DQPSK	High	0.998	0.832	PASS
8DPSK	Low	0.998	0.803	PASS
8DPSK	Middle	1.002	0.797	PASS
8DPSK	High	0.996	0.800	PASS

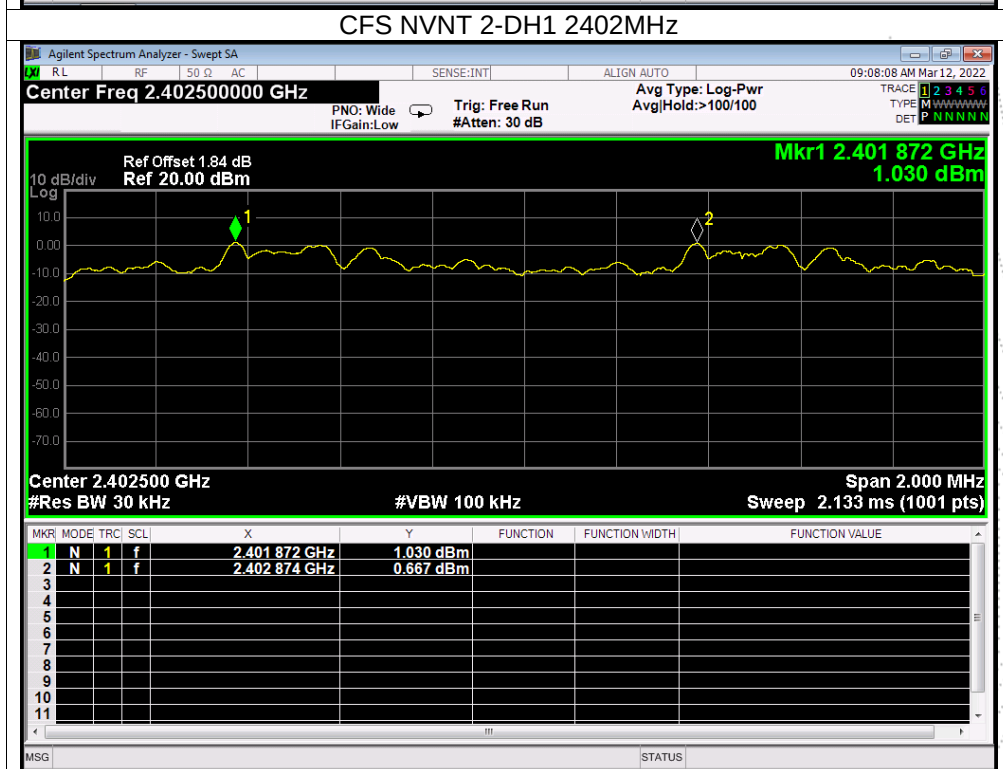
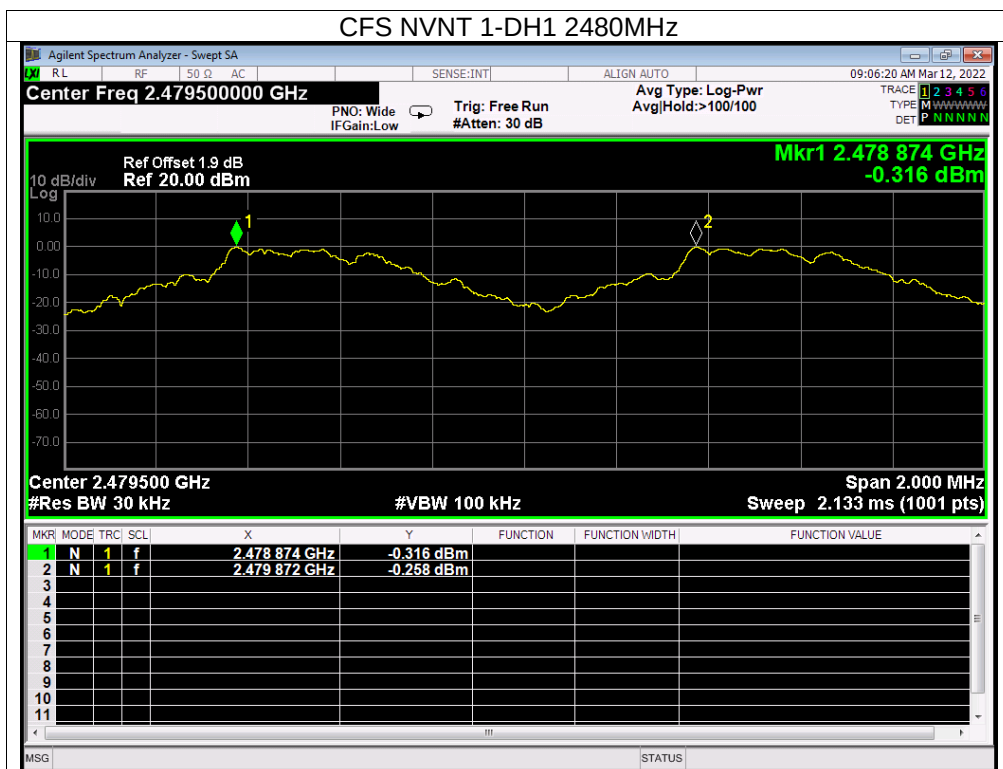
Right

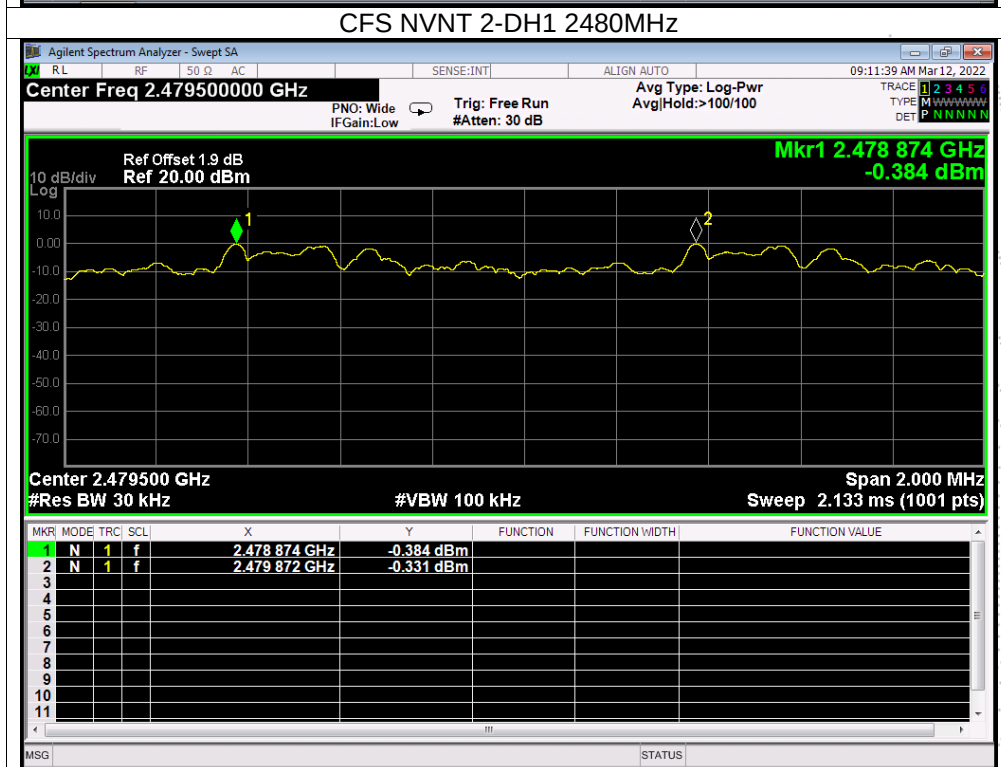
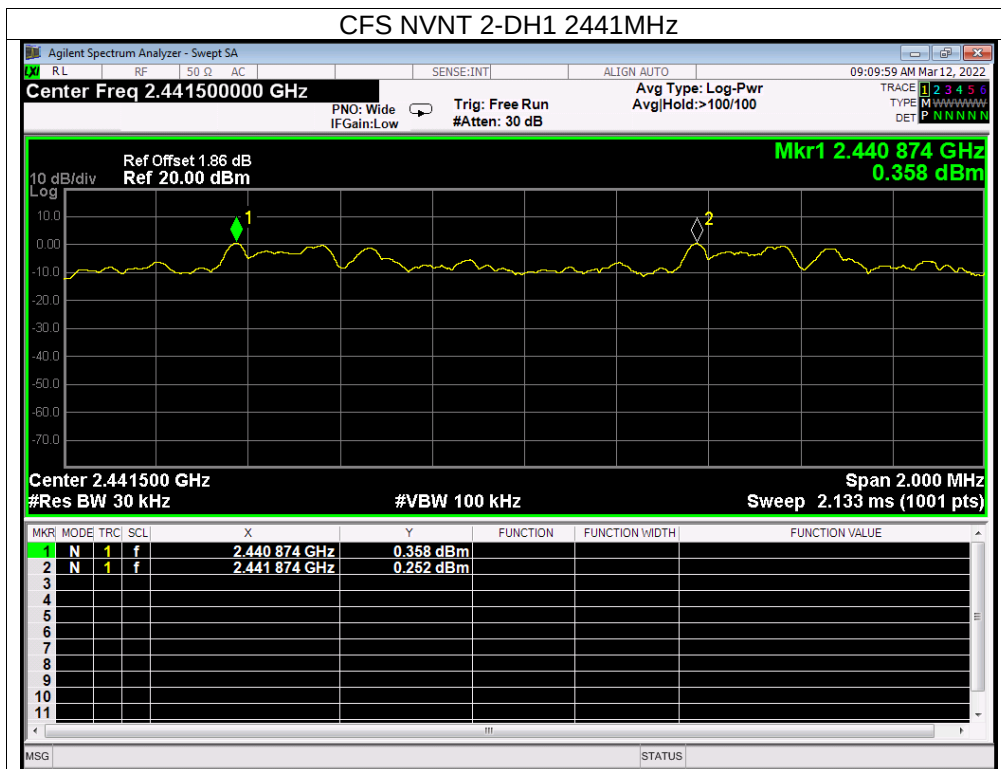
Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	1	0.918	PASS
GFSK	Middle	1	0.861	PASS
GFSK	High	1.338	0.879	PASS
$\pi/4$ DQPSK	Low	1.002	0.856	PASS
$\pi/4$ DQPSK	Middle	1	0.841	PASS
$\pi/4$ DQPSK	High	1.002	0.851	PASS
8DPSK	Low	1.006	0.815	PASS
8DPSK	Middle	1.002	0.813	PASS
8DPSK	High	1	0.812	PASS

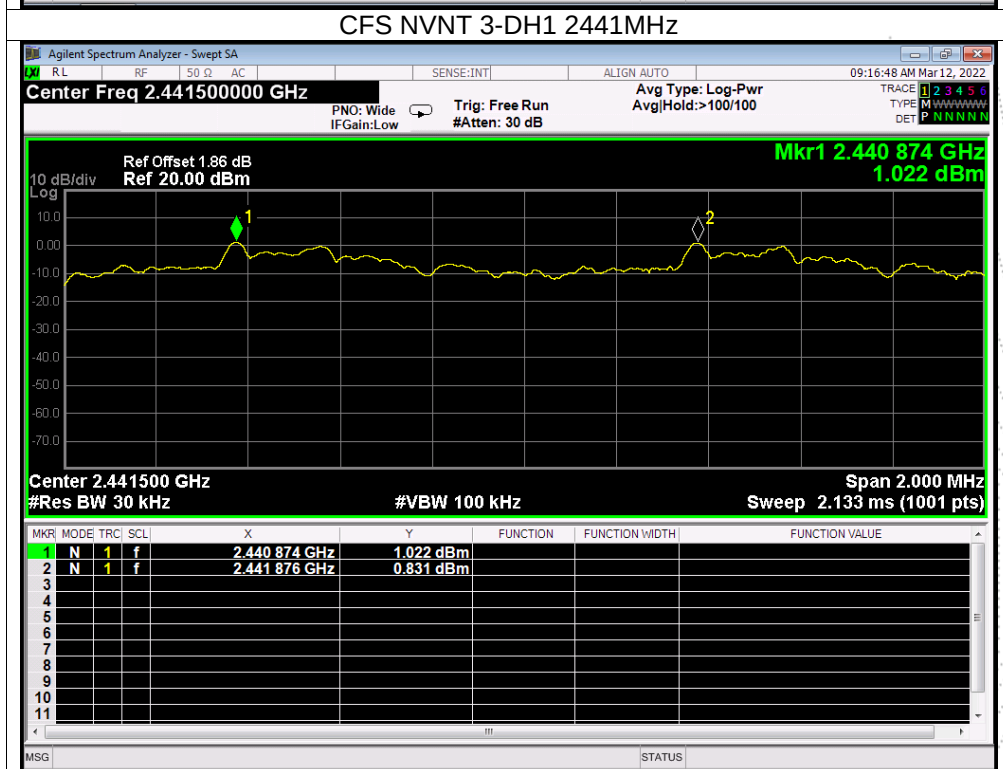
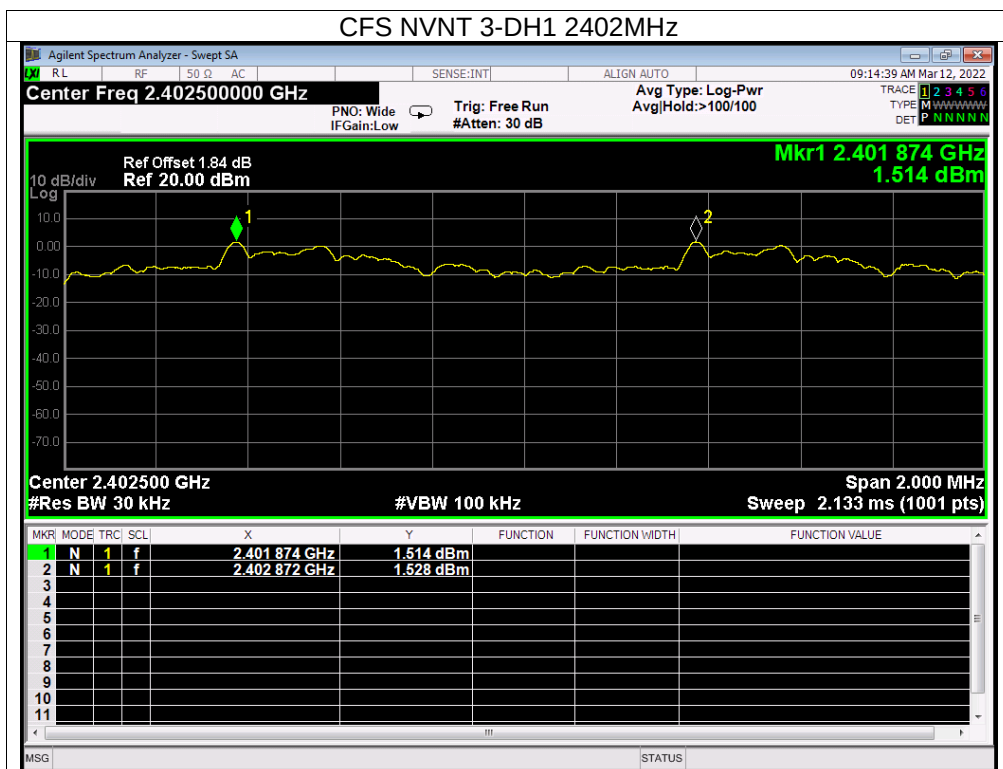


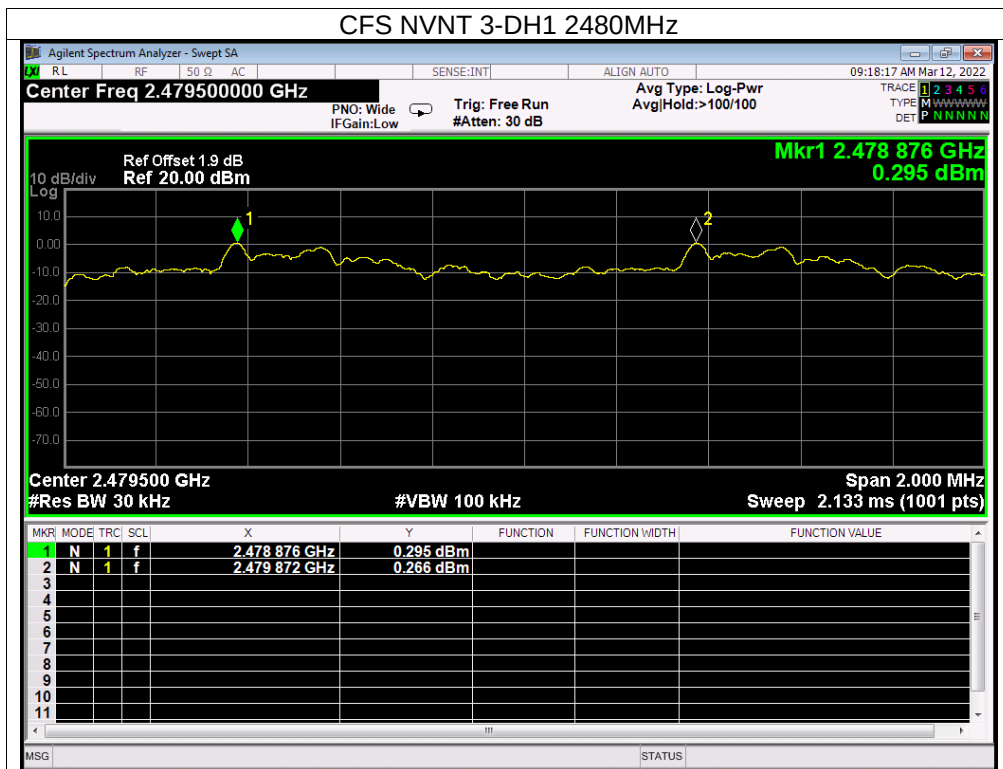
Left

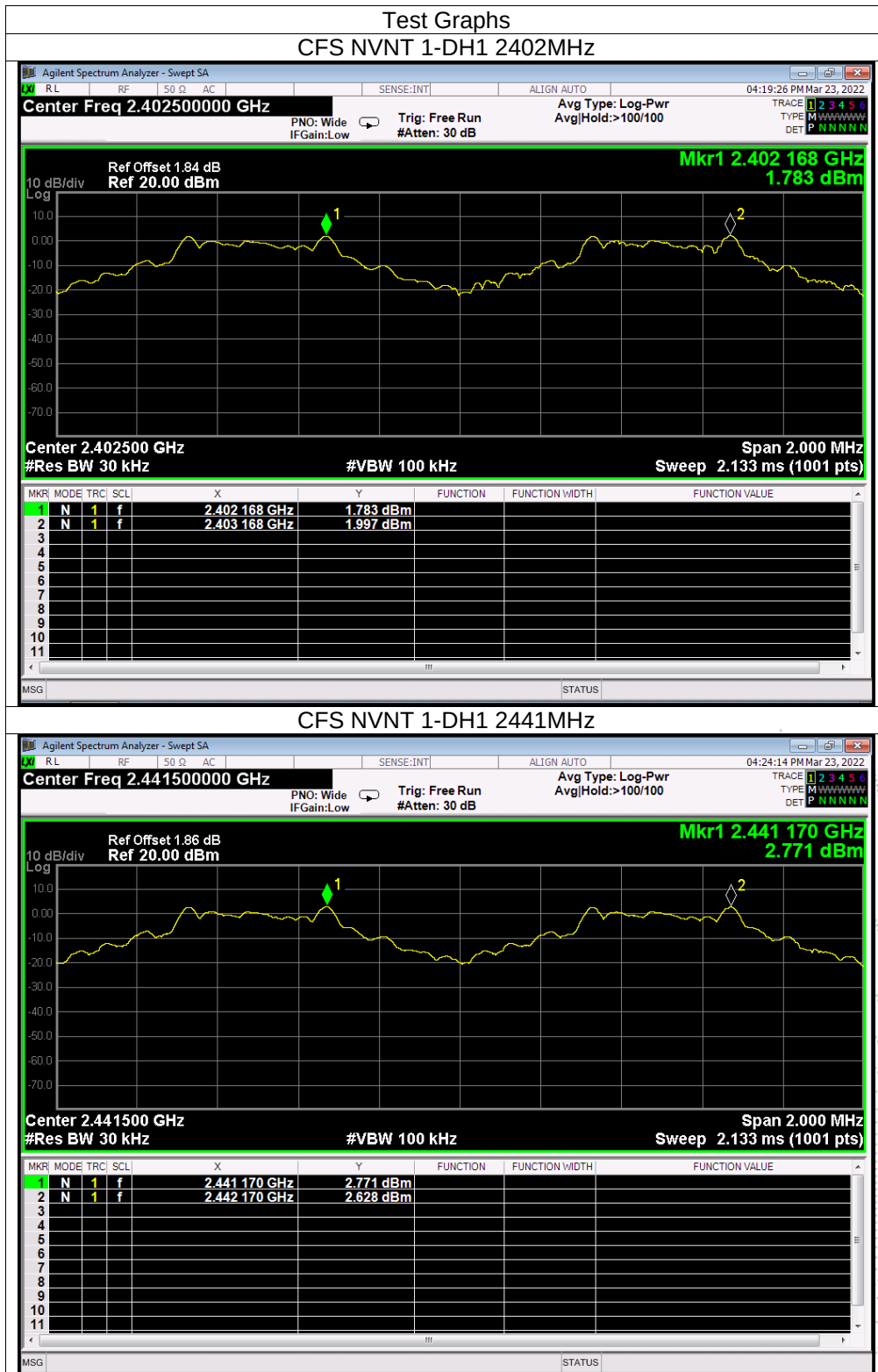


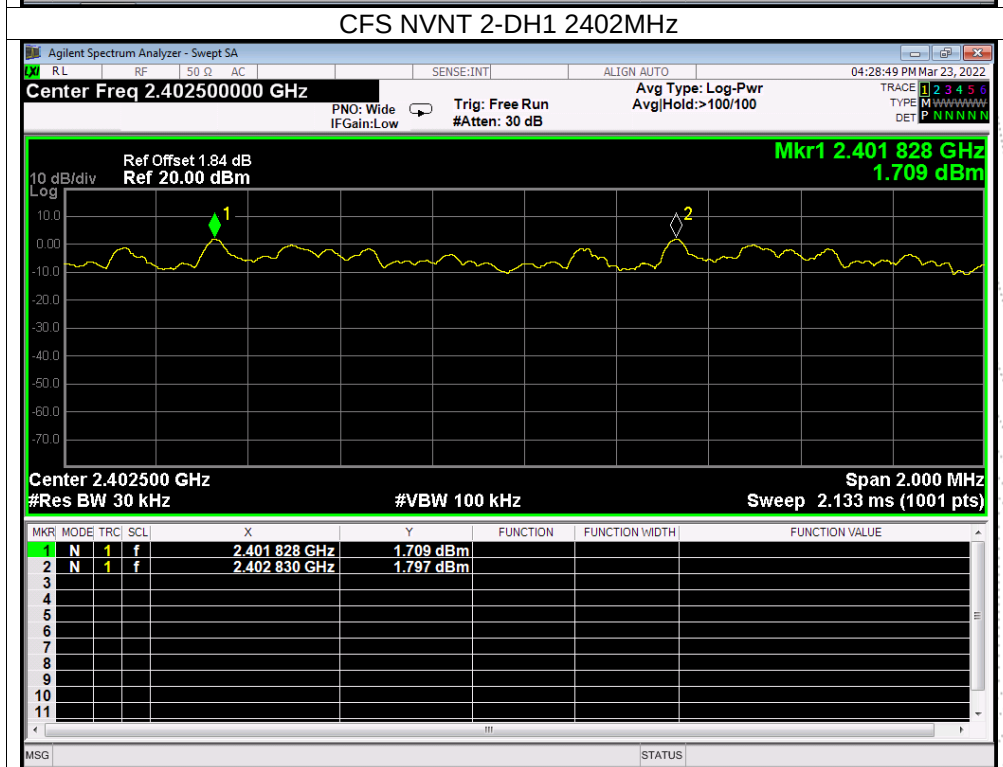
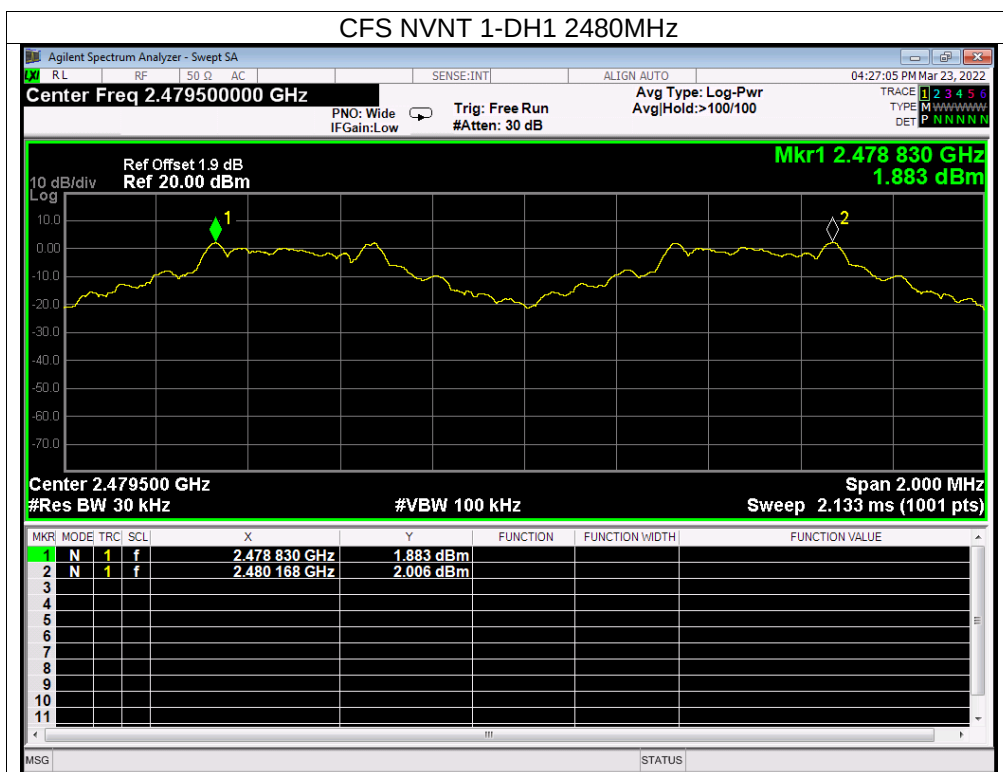


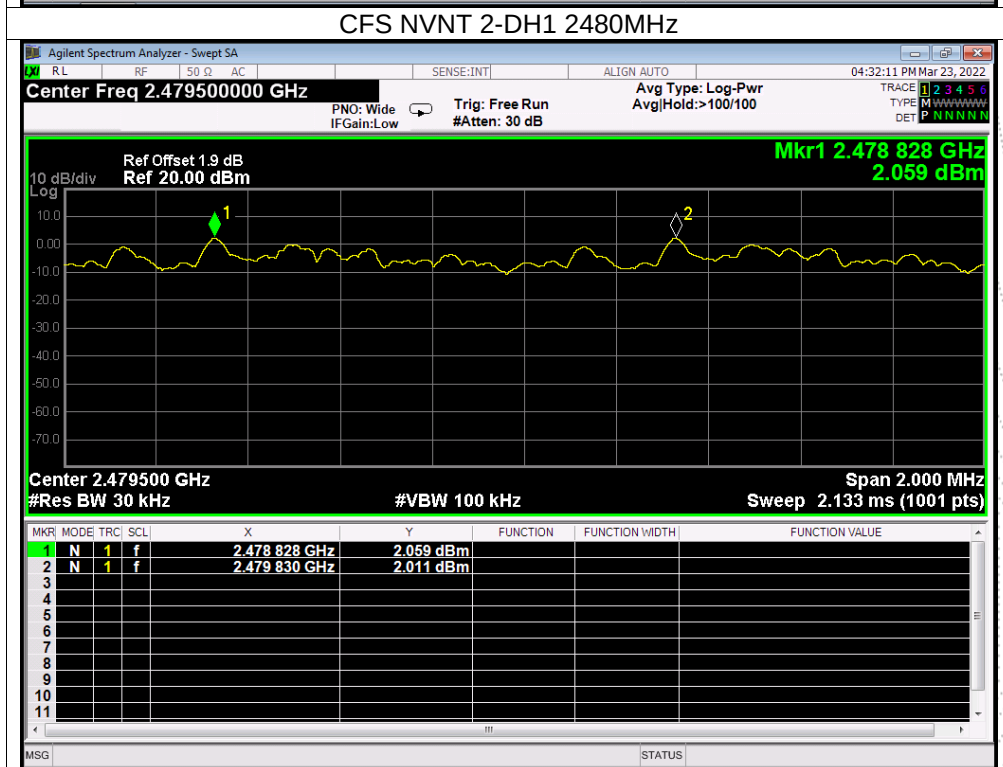
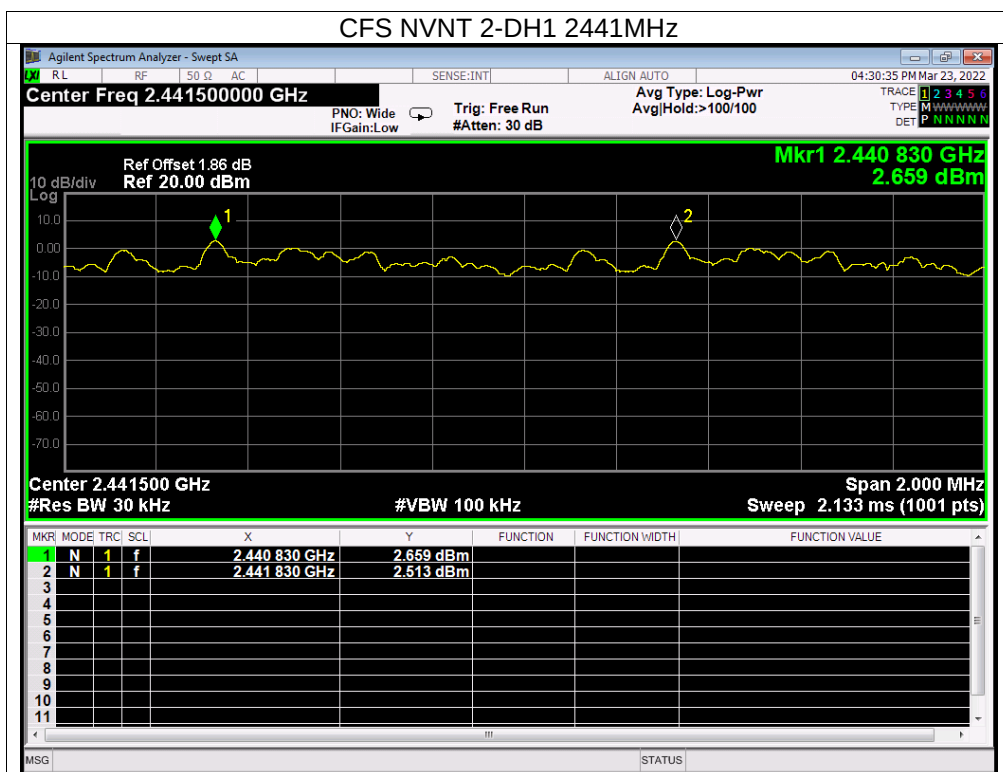


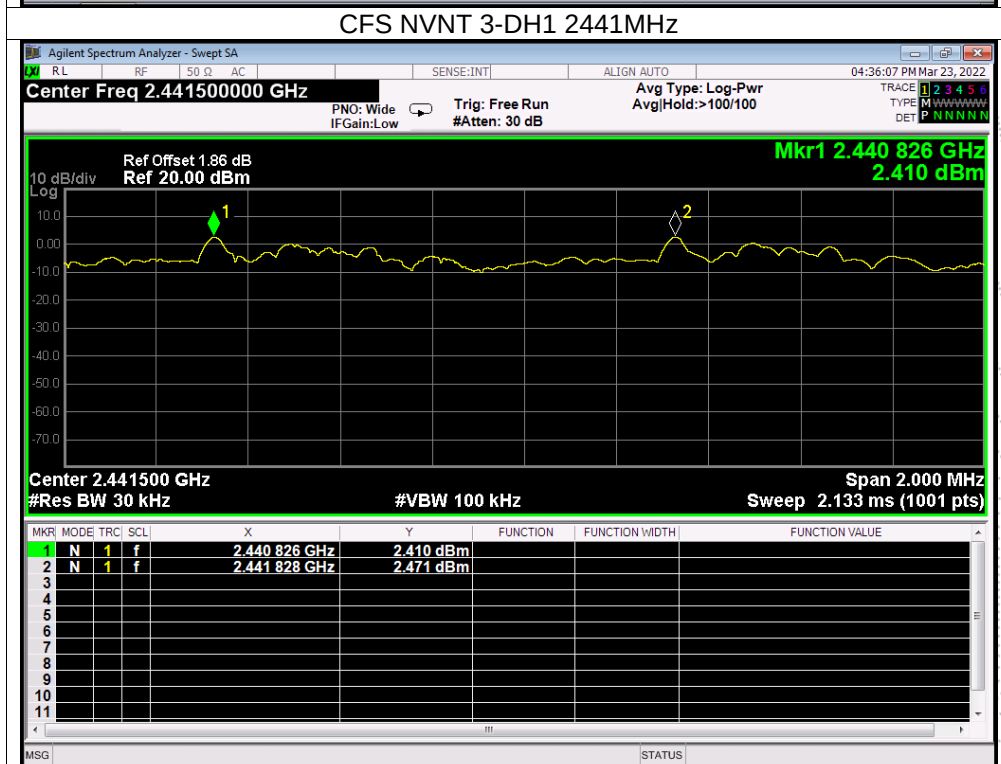
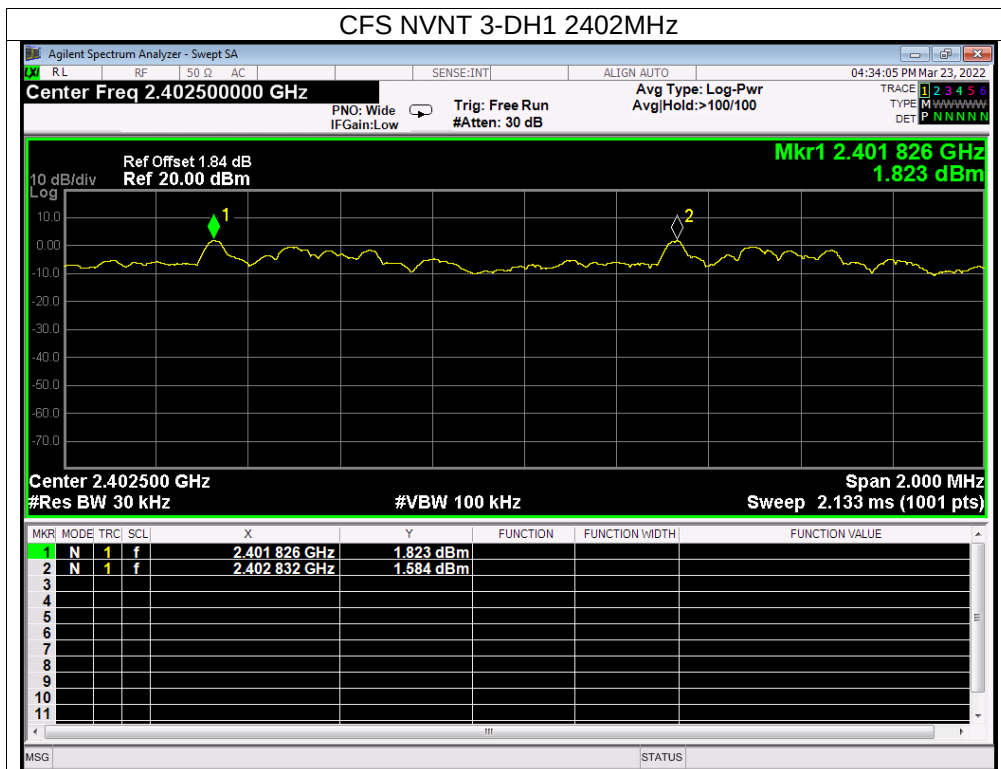


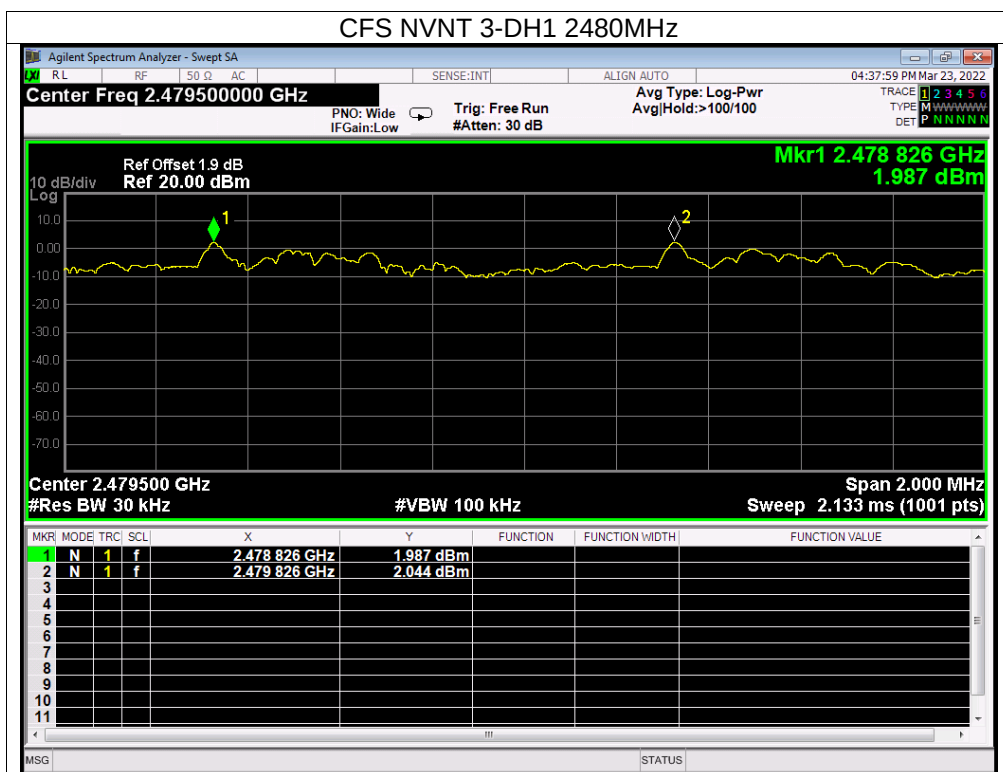












13. Number Of Hopping Frequency

13.1 Block Diagram Of Test Setup



13.2 Limit

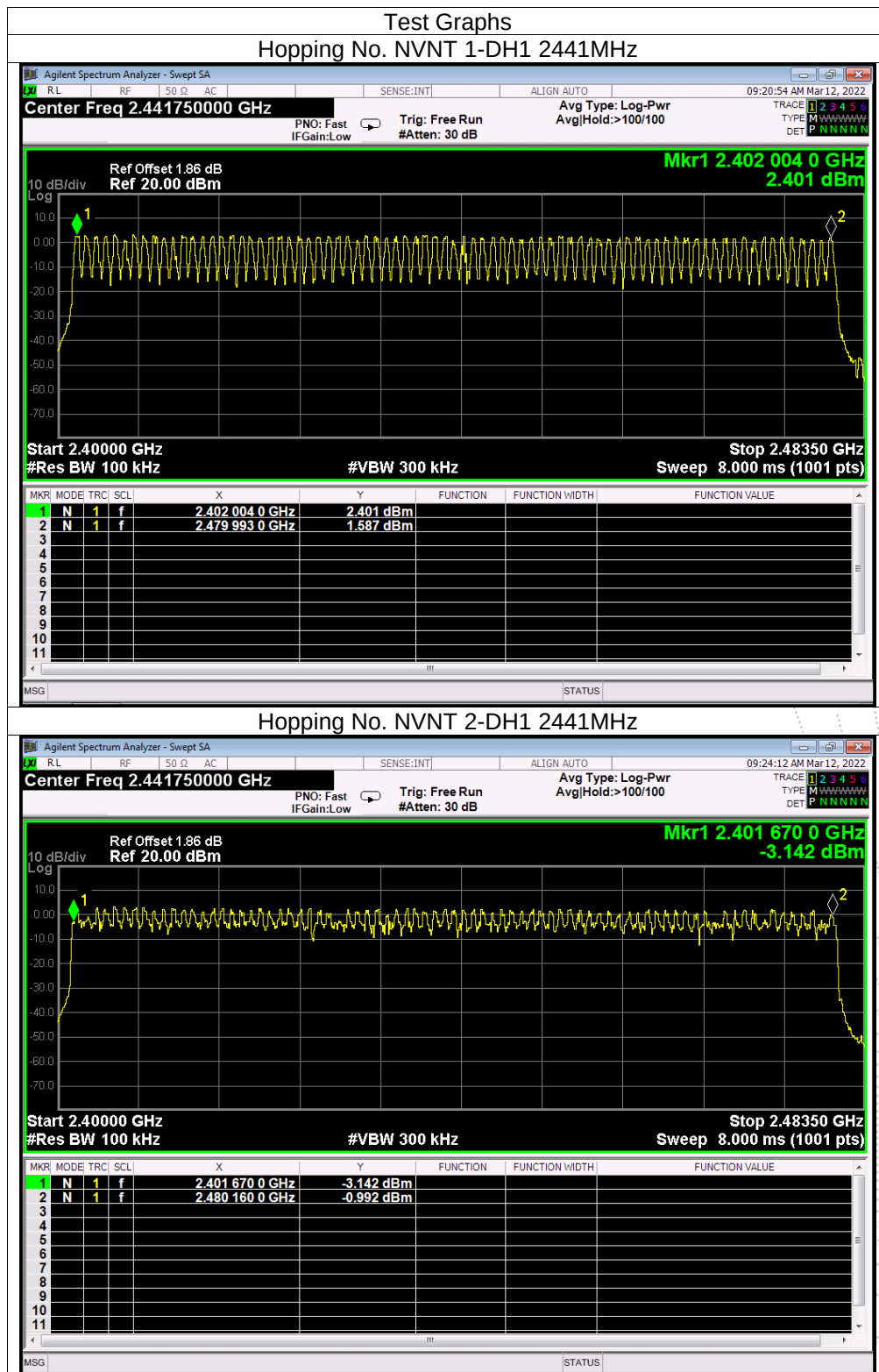
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

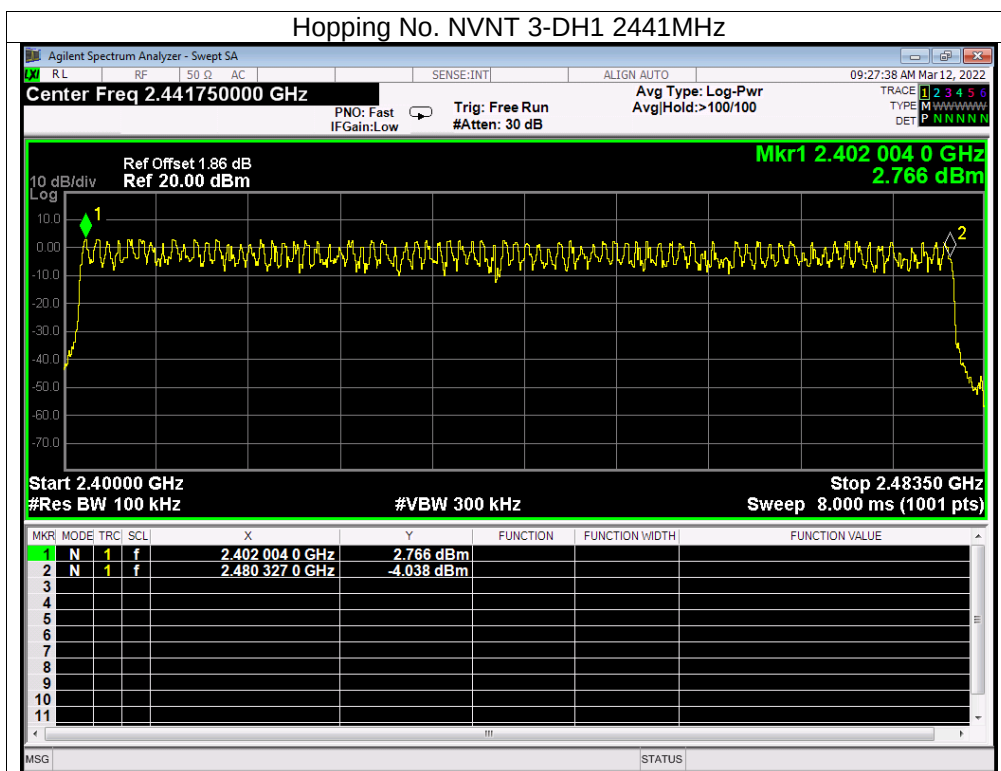
13.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

13.4 Test Result

Left

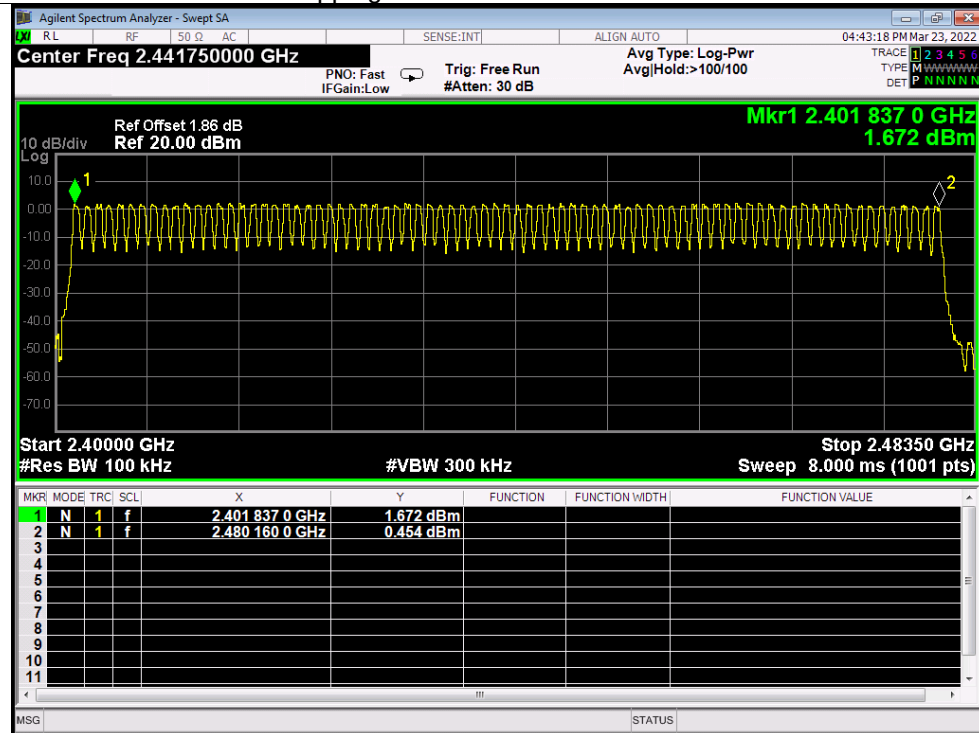




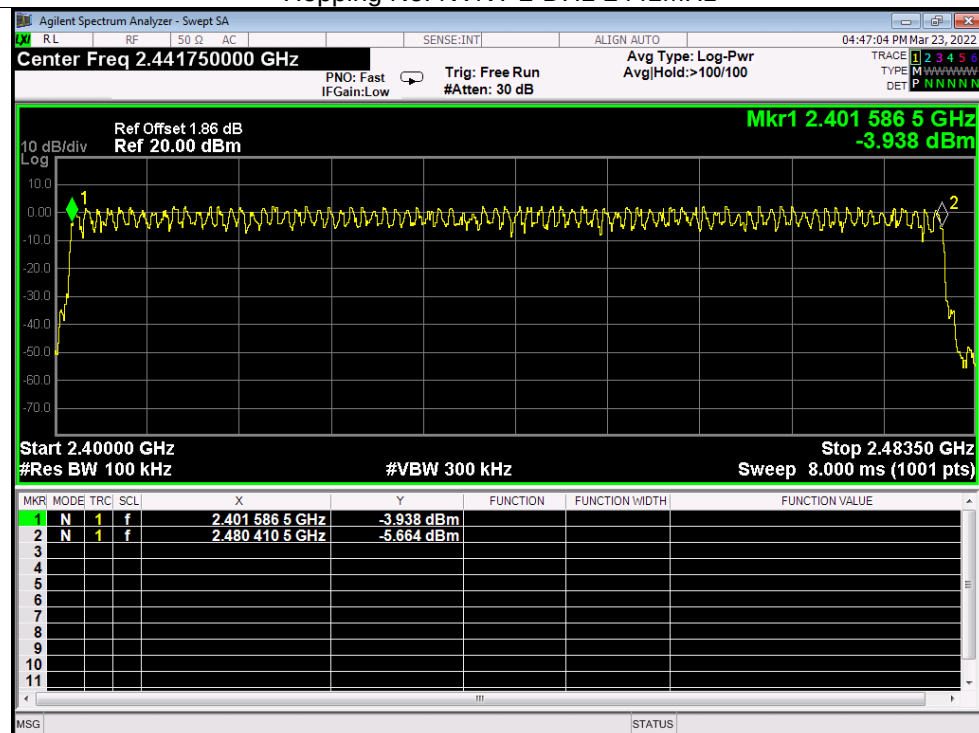


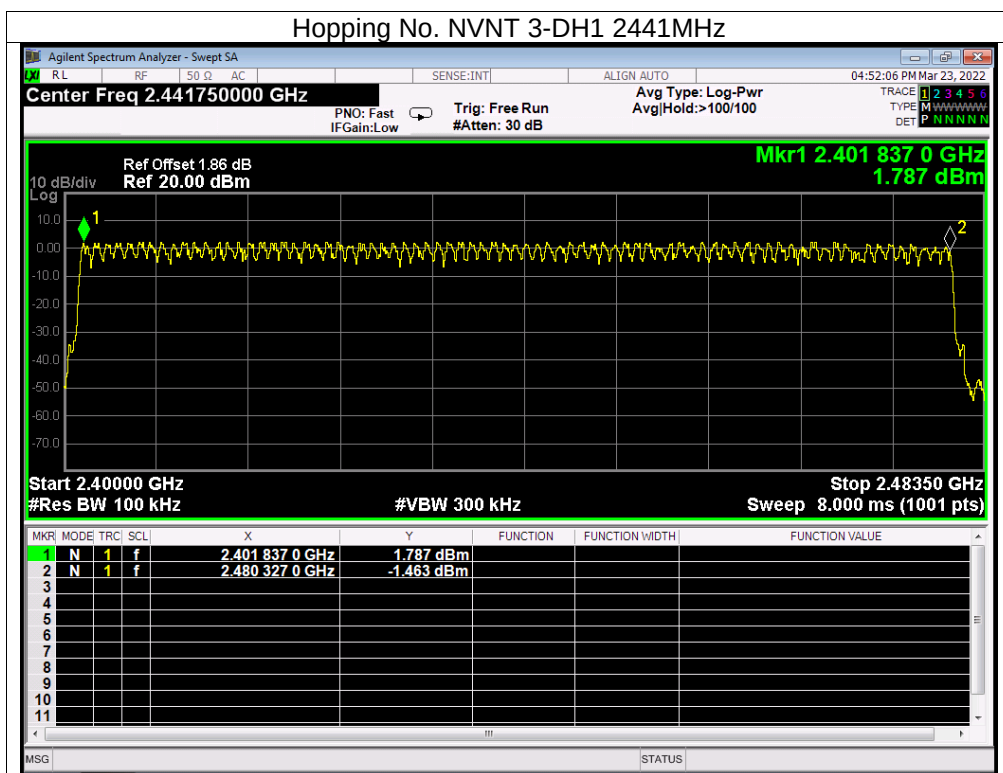
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz



Hopping No. NVNT 2-DH1 2441MHz





14. Dwell Time

14.1 Block Diagram Of Test Setup



14.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

14.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set spectrum analyzer span = 0. Centred on a hopping channel;
3. Set RBW = 1MHz and VBW = 3MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

14.4 Test Result

Left

Modulation	Channel Data	Packet	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
GFSK	Middle	DH1	0.384	121.728	317	31600	400	Pass
		DH3	1.643	267.809	163	31600	400	Pass
		DH5	2.889	288.9	100	31600	400	Pass
$\pi/4$ DQPSK	Middle	2DH1	0.398	126.962	319	31600	400	Pass
		2DH3	1.646	263.36	160	31600	400	Pass
		2DH5	2.895	283.71	98	31600	400	Pass
8DPSK	Middle	3DH1	0.397	126.246	318	31600	400	Pass
		3DH3	1.648	275.216	167	31600	400	Pass
		3DH5	2.9	327.7	113	31600	400	Pass

Right

Modulation	Channel Data	Packet	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
GFSK	Middle	DH1	0.395	124.03	314	31600	400	Pass
		DH3	1.65	247.5	150	31600	400	Pass
		DH5	2.899	272.506	94	31600	400	Pass
$\pi/4$ DQPSK	Middle	2DH1	0.405	128.79	318	31600	400	Pass
		2DH3	1.656	258.336	156	31600	400	Pass
		2DH5	2.905	319.55	110	31600	400	Pass
8DPSK	Middle	3DH1	0.404	128.876	319	31600	400	Pass
		3DH3	1.655	256.525	155	31600	400	Pass
		3DH5	2.906	281.882	97	31600	400	Pass

